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BRUARY 1950

Journal of the

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AMERICAN PHARMACEUTICAL ASSOCIATION

Practical Pharmacy Edition

Support 1950 Heart Campaign

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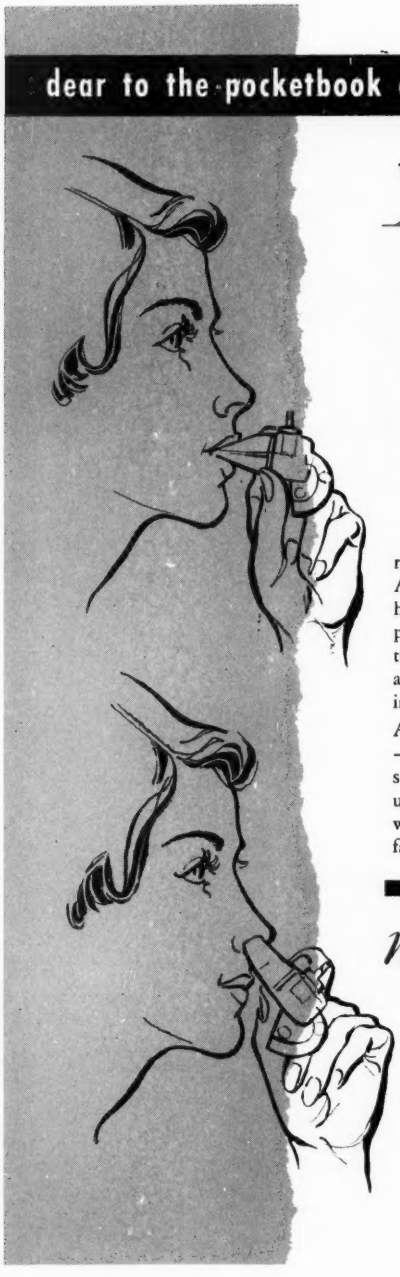
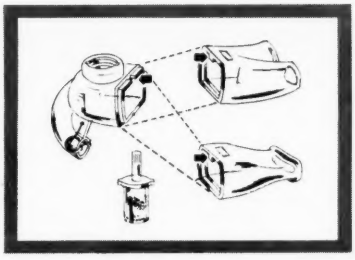
dear to the pocketbook of every pharmacist . . .



THE *Aerohalor*®



Immediate and growing has been the physician response to the advantages of the AEROHALOR, Abbott's unique device for penicillin powder inhalation therapy . . . the wide mouthpiece which provides for an open airway through the mouth . . . the fractional-dosage technique which permits only a small amount of powder to be inhaled with each inspiration . . . the interchangeable nosepiece.

Again this year Abbott is out to make the Aerohalor —and Aerohalor Cartridges*—the season's fastest-selling specialty. A heavy promotion schedule now under way—plus intensive detailing—will add new friends for an established favorite. Be *sure* stocks are adequate.

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new **for use with the Aerohalor in ASTHMA**

NORISODRINE® Sulfate† Powder in Aerohalor* Cartridges—10% Powder containing Norisodrine Sulfate 10 mg. and Lactose 90 mg. —25% Powder containing Norisodrine Sulfate 25 mg. and Lactose 75 mg. Both forms supplied in boxes of 12.

†(Isopropylarterenol Sulfate, Abbott)

*Trade Mark for Abbott Sifter Cartridge. Aerohalor and Aerohalor Cartridges patented in U.S. and foreign countries.

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PENICILLIN TABLETS for *oral therapy*, 50,000, 100,000, 250,000 and 500,000 units per tablet. The consensus of medical authorities is that the effectiveness of orally administered penicillin is dependent upon the dose administered and the vehicle used. Accordingly, Winthrop-Stearns offers high potency tablets of crystalline potassium penicillin G in an approved buffer of calcium carbonate (with sucrose and starch). Also Soluble Penicillin Tablets, 50,000 and 100,000 units, without any addition.

Stock the complete WINTHROP-STEARNS penicillin family.

PISTON-VALVE INHALER *for inhalation* of micronized penicillin in the management of respiratory infections. Supplied with three cartridges containing 100,000 units each.

Winthrop-Stearns INC. 170 VARICK STREET, NEW YORK, N. Y.

NOW.. ADDED CONVENIENCE FOR THE PATIENT

The "RAMSES"* Tuk-A-Way† Kit provides added convenience for the patient, for she will find, neatly assembled in this colorful, washable plastic kit, all the units required for optimum protection against conception: a "RAMSES" Flexible Cushioned Diaphragm of the prescribed size; a "RAMSES" Diaphragm Introducer of corresponding size; and a regular-size tube of "RAMSES" Vaginal Jelly.‡

The Tuk-A-Way Kit packs inconspicuously in the corner of a traveling bag or dresser drawer. It is available to patients through all pharmacies.

*The word "RAMSES" is a registered trademark of Julius Schmid, Inc. "RAMSES" Vaginal Jelly is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. The "RAMSES" Diaphragm and Diaphragm Introducer are accepted by the Council on Physical Medicine and Rehabilitation of the American Medical Association.

†Trademark of Julius Schmid, Inc. ‡Active Ingredients: Dodecaethyleneglycol Monolaurate 5%; Boric Acid 1%; Alcohol 5%.

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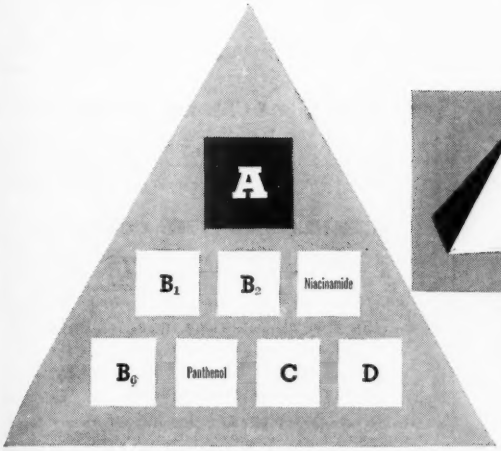
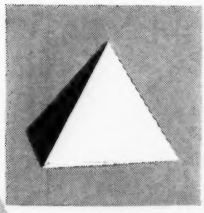
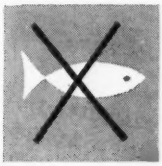




Pyramid Your Multivitamin Sales With

THERA-VITA 'Warner'

with Synthetic Vitamin A without fishy after-taste



The problem created by repugnant fishy after-taste in vitamins is solved by THERA-VITA* 'Warner.' The vitamin A in THERA-VITA* is the new synthetic Vitamin A Acetate 'Warner' which has been demonstrated to be as stable and biologically active as the most highly refined and purified natural vitamin A but is devoid of the all-too-common distasteful fishy after-taste and odor of the natural product.

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THERA-VITA* is particularly indicated for intensive therapy in vitamin depletions or deficiencies due to, or accompanying febrile diseases, allergic disorders, hyperthyroidism, inadequate diet, surgical operations, gastrointestinal disturbances, pregnancy.

The new THERA-VITA* with synthetic vitamin A is getting a wide reception with the Medical Profession. Its lack of fishy after-taste distinguishes it from other vitamin preparations of its kind.

This is the vitamin season! Keep your stocks well replenished to meet the demand. Pyramid your sales with this ethical multivitamin preparation, THERA-VITA*.

*T. M. REG. U. S. PAT. OFF.,

The formula of THERA-VITA

each capsule contains:

Vitamin A (synthetic vitamin A acetate)	12,500 U.S.P. Units
Vitamin B_1 (thiamine hydrochloride)	10 mg
Vitamin B_2 (riboflavin)	10 mg
Niacinamide	100 mg
Vitamin B_6 (pyridoxine hydrochloride)	1 mg
Panthenol (equivalent to 11.5 mg d-Calcium Pantothenate)	10 mg
Vitamin C (ascorbic acid)	150 mg
Vitamin D (activated ergosterol)	1,250 U.S.P. Units

William R. Warner & Co., Inc.

New York St. Louis Los Angeles

palatable... potent

FOR ORAL ADMINISTRATION

- √ EASY TO TAKE
- √ WELL TOLERATED*
- √ RAPIDLY ABSORBED
- √ SUPPLIES ALL THE RECOGNIZED ESSENTIAL AMINO ACIDS IN SIGNIFICANT AMOUNTS

Prescribe Caminoids

. . . whenever increased protein intake is required and the patient has difficulty in utilizing the necessary large amounts of protein from natural food sources, as may occur at times in pregnancy and lactation, gastrointestinal disorders, convalescence, chronic malnutrition, surgery (both pre- and postoperatively), and liver disease; certain conditions in children, such as chronic diarrheas or nephrosis; and in old age, when needed protein foods are likely to be refused or poorly tolerated.

One tablespoonful of CAMINOIDS three times daily provides 12 Gm. of protein as hydrolysate.

SUPPLIED: As a dry, granular powder, in 1-lb., 5-lb., and 10-lb. containers; also available in bottles containing 6 oz.

*CAMINOIDS has a notably low order of allergenicity.

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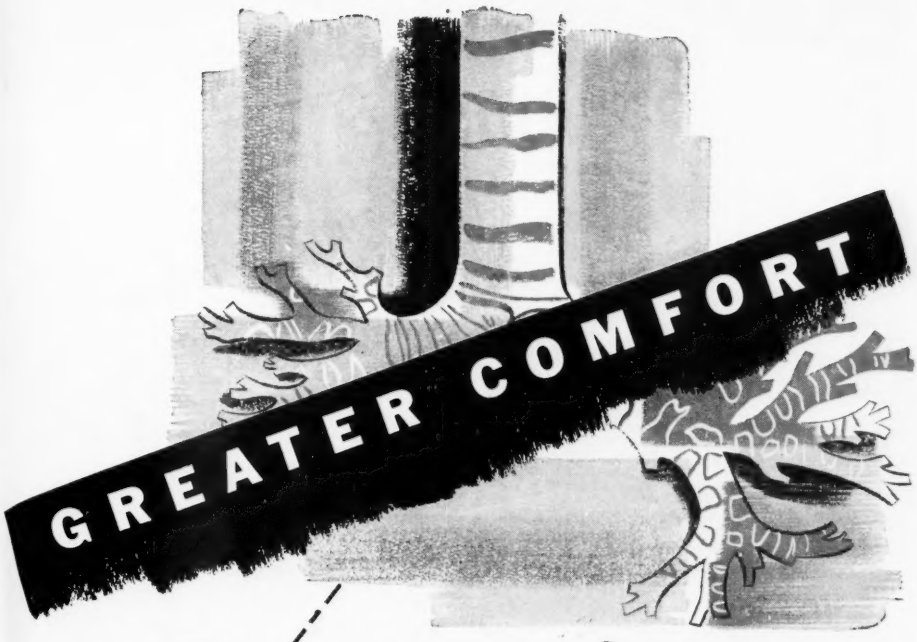

in Bronchial Asthma

Elixir Thalfed is a valuable means of producing prompt and prolonged relief from the severe distress of asthma, and minimizing recurrence of paroxysms. It exerts a direct bronchial relaxing influence through the action of its contained aminophylline and ephedrine, and a central action by means of phenobarbital.

Each teaspoonful (5 cc.) provides:

Aminophylline	100 mg. (1½ gr.)
Ephedrine	20 mg. (⅓ gr.)
Phenobarbital	20 mg. (⅓ gr.)

Elixir Thalfed is particularly useful in chronic asthmatic states because of its preventive action against recurrence of seizures and because it combats the frequent tendency to nightly paroxysms. Valuable also in controlling the cough associated with allergic rhinitis and chronic asthmatic bronchitis. Elixir Thalfed is supplied in gallon and pint bottles.

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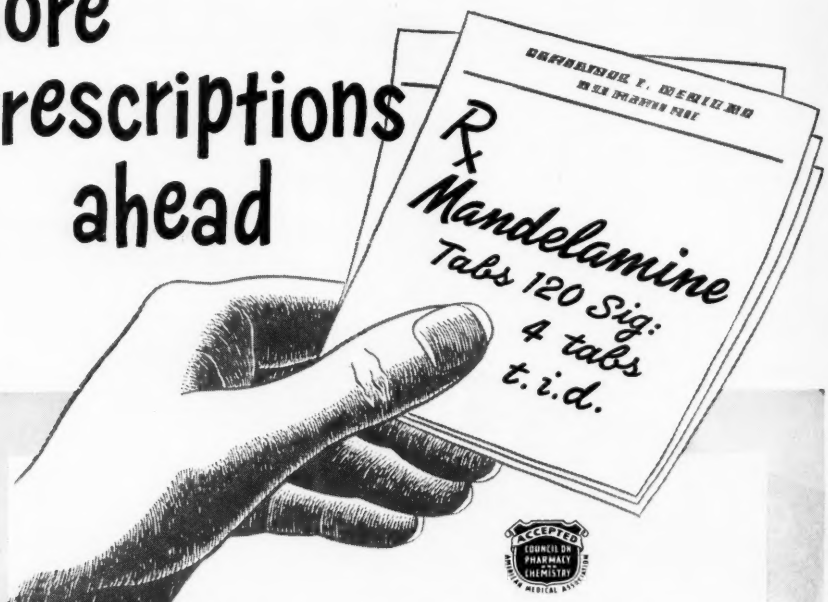
more prescriptions ahead



Because of its ever broadening clinical applications more and more physicians are prescribing MANDELAMINE—the urinary antiseptic with these

6 OUTSTANDING FEATURES

1 Wide antibacterial range

2 No supplementary acidification required (except when urea-splitting organisms occur)

3 Little or no danger of drug-fastness

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6 Simplicity of regimen—3 or 4 tablets t.i.d.

These six features are further reason why MANDELAMINE means greater demand, faster turnover, better prescription business for you.

Place *your* weight behind MANDELAMINE. Let the physicians in your trading area know that you keep adequate stocks of this Council-accepted product. MANDELAMINE is indicated in urinary-tract infections such as pyelitis, nephroptosis with pyelitis, cystitis, prostatitis, nonspecific urethritis, neurogenic bladder, and pre- and postoperative prophylaxis in urologic surgery. Therapy with MANDELAMINE must, of course, be under the supervision of the physician.

MANDELAMINE

Registered trademark of Nepera Chemical Co., Inc., for its brand of methenamine mandelate

SUPPLIED: Bottles of 120, 500, and 1,000 enteric-coated tablets of 0.25 Gm. each. *Order from your regular wholesaler.*

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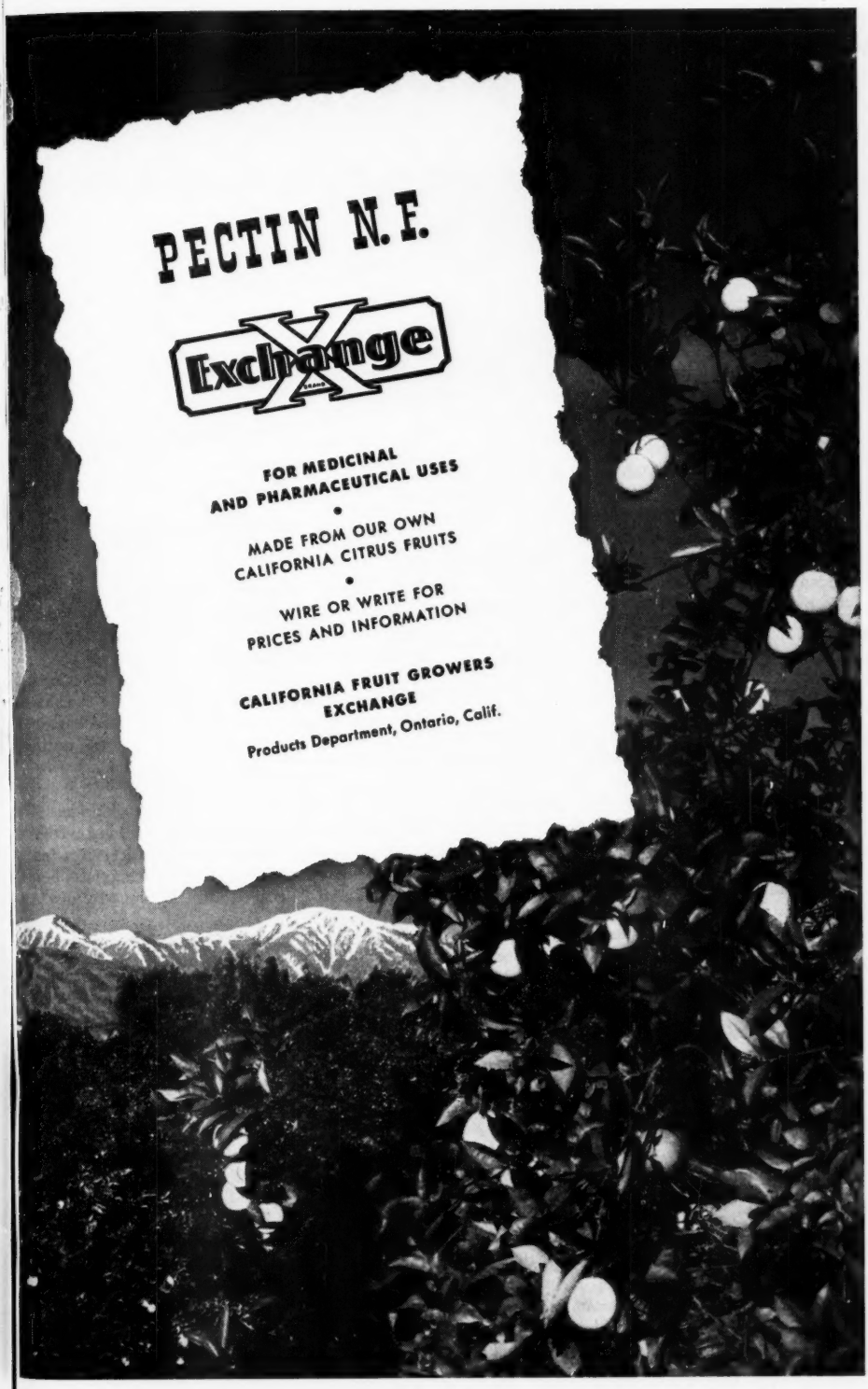
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Products Department, Ontario, Calif.

New prescription products

Product descriptions may be clipped and filed on three- by five-inch cards. These are also indexed for quick reference in the "Monthly Drug Index" appearing on the last page of each issue. A product is described in this column for the information of pharmacists who may be asked by physicians to stock the drug, or who may receive professional inquiries about it. A listing does not imply evaluation or recommendation by the Association, nor does omission of any product have significance concerning its merit.

ACON

Description: A water-soluble vitamin A each cc. of which contains 25,000 units of vitamin A.

Form Supplied: 30-cc. dropper bottle.

Action: Treatment of vitamin A deficiency.

Administration: Orally by drop doses; recommended daily dose is 1 cc. (25,000 units).

Source: Endo Products, Inc., Richmond Hill 18, N. Y.

AVOSYL

Description: Tablets each containing 0.25 Gm. of 3-ortho-toloxy-1,2-propanediol, a compound known in Europe as Myanesin.

Form Supplied: Bottles of 100 and 1000 tablets.

Action: It has been shown that the compound often produces marked relaxation of muscles in conditions characterized by spasticity due to lesions in the brain or spinal cord.

Administration: Orally; suggested adult dosage is 4 tablets given 3 to 5 times daily. Treatment should be discontinued after 3 or 4 days if there is no evidence of response.

Source: Schenley Laboratories, Inc., New York 1, N. Y.

CLOPANE HYDROCHLORIDE SOLUTION

Description: Solution Clopane hydrochloride (cyclopentamine hydrochloride) is an isotonic aqueous solution containing 1-cyclopentyl-2-methylaminopropane hydrochloride 0.5%; with phenylmercuric nitrate, 1:50,000, as a preservative.

Form Supplied: 1-oz., 1-pint and 1-gal. bottles.

Action: Vasoconstrictor. Clopane hydrochloride is a sympathomimetic drug producing responses similar to those which follow administration of sympathomimetics such as ephedrine and epinephrine.

Administration: May be applied to the nose by spray, dropper or tampon according to the individual needs and response of the patient.

Source: Eli Lilly and Co., Indianapolis 6, Ind.

CLOPANE HYDROCHLORIDE with PENICILLIN G

Description: A package containing one 15-cc. bottle of a 0.5% solution of Clopane (cyclopentamine) hydrochloride and one soluble tablet of penicillin G crystalline potassium, 150,000 units.

Form Supplied: Single combination packages.

Action: Intended for instillation into the sinuses to treat infections in which the vasoconstrictor action of Clopane hydrochloride and the antibacterial activity of penicillin are required.

Administration: The penicillin tablet is dissolved in the solution of Clopane hydrochloride. The resultant solution, which may be kept in a refrigerator for one week without significant loss of potency, may be diluted with one or two parts of sterile normal saline and instilled into the sinus by displacement.

Source: Eli Lilly and Co., Indianapolis 6, Ind.

CREMOTRES

Description: Flavored suspension containing in each 100 cc. sulfamerazine 2 Gm.; sulfamethazine 4 Gm.; sulfadiazine 4 Gm.; and alcohol 5%.

Form Supplied: 16-oz. bottles.

Action: Treatment of infections amenable to the sulfonamides.

Administration: Initial adult dose of 2 tablespoonfuls followed by 2 teaspoonfuls every 4 hours. Dose for children according to age.

Source: Sharpe & Dohme, Inc., Philadelphia 1, Pa.

HISTACIN

Description: Capsules each containing the antihistamine Pyranisamine Maleate (Neo-Antergan)

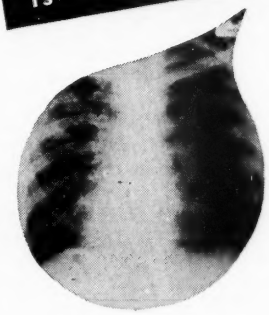
(*Continued on Page 74*)

The Panray Corp. takes pleasure in announcing that

PARASAL

PAS, Para Aminosalicylic Acid Panray

is now available for your Prescription Department



What is PARASAL? PARASAL is Panray's brand of highly purified PAS (Para Aminosalicylic Acid), a drug with remarkable tuberculostatic properties. At present, it is administered orally in powder or tablet form, though other pharmaceutical forms are under clinical investigation.

PARASAL Combats Tuberculosis: The effect of Para Aminosalicylic Acid on TB patients was originally investigated less than four years ago in Sweden. Two years ago, the Panray Corp. initiated research, development and clinical investigation of the drug in this country. Today, hundreds of sanitaria, hospitals, and specialists are using PARASAL in their fight against tuberculosis. Thousands of case histories have already been compiled, and the evidence now indicates that

(1) *PARASAL is valuable in the treatment of many forms of tuberculosis. Its administration usually brings rapid reduction of fever, cough and expectoration, as well as general X-ray and clinical improvement.*

(2) *PARASAL delays the emergence of streptomycin-resistant strains of bacteria. It is therefore recommended for use as an adjunct to streptomycin therapy.*

(3) *When PARASAL is administered as a synergist to streptomycin, patients are given the benefit of a more prolonged period of combined chemotherapy.*

PARASAL is ethically advertised: **PARASAL is now being intensively advertised and promoted to TB specialists—as well as all G.P.'s interested in tuberculosis—in medical journals, through direct mail, and by detail men throughout the country. PARASAL advertising this month is appearing in *Diseases of the Chest* and the *American Review of Tuberculosis*—the two most influential and respected journals in the field of tuberculosis.**

PARASAL POWDER is supplied in 1 lb., 1/2 lb., and 1/4 lb. bottles.

PARASAL TABLETS are supplied in bottles of 1,000, 500, and 100.

PARASAL is manufactured by Hexagon Laboratories, Inc., for exclusive distribution by the Panray Corp.

THE Panray CORP.
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For complete literature and prices on PARASAL, fill out and mail this coupon today.

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Gentlemen: Please send literature and prices on PARASAL

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NEW PRESCRIPTION PRODUCTS

(Continued from Page 72)

20 mg.; aspirin 0.18 Gm.; phenacetin 0.12 Gm.; caffeine 60 mg.; and ascorbic acid 30 mg.

Form Supplied: Bottles of 25 capsules.

Action: For treatment of the common cold using the combined antihistaminic-analgesic-antipyretic therapy with the addition of vitamin C.

Administration: Two capsules every 4 hours, or as directed. Prescription required.

Source: Walker Vitamin Products, Inc., Mount Vernon, N. Y.

MURACIL

Muracil is the new name for Antibason (methyl thiouracil), manufactured by Organon, Inc., Orange, N. J.

PARASAL

Description: Para-aminosalicylic acid (PAS) available in 0.5-Gm. tablets or powder form.

Form Supplied: Powder in 1/4, 1/2, and 1-lb. bottles; tablets in bottles of 100, 500 and 1000.

Action: Adjunct in the treatment of pulmonary tuberculosis by the inhibition of the growth of tubercle bacilli.

Administration: Orally, in divided daily doses of 6 to 20 Gm. or more, as determined by the physician. *Caution:* Gastro-intestinal irritation may result.

Source: The Panray Corp., New York 11, N. Y.

PASEM-SODIUM

Description: Capsules each containing 0.5 Gm. of the sodium salt of para-aminosalicylic acid (PAS).

Form Supplied: Bottles of 500 capsules.

Action: Adjunct in the treatment of pulmonary tuberculosis by the inhibition of the growth of tubercle bacilli.

Administration: Initial dose of 6 capsules repeated every 3 hours for a total of 5 doses each day (15 Gm. in 24 hours) is suggested. *Caution:* Gastro-intestinal irritation may result.

Source: S. E. Massengill Co., Bristol, Tenn.

PERAZIL

Description: Tablets each containing the antihistamine Perazil (chlorcyclizine hydrochloride) 50 mg.

Form Supplied: Bottles of 100 tablets.

Action: Indicated in allergic conditions for which histamine antagonists are effective.

Administration: Orally, as determined by the physician.

Source: Burroughs Wellcome & Co., Inc., Tuckahoe 7, N. Y.

PYRROXATE CAPSULES

Description: Capsules each containing the antihistamine Pyrrolazote (pyrathiazine) hydrochloride 12.5 mg.; the bronchodilator Orthoxine (methoxyphenamine) hydrochloride 25 mg.; phenacetin 0.15 Gm.; aspirin 0.23 Gm.; and caffeine 30 mg.

Form Supplied: Bottles of 24, 500, and 5000 capsules.

Action: For treatment of the common cold using the combined antihistaminic-analgesic-antipyretic therapy. Orthoxine is stated to be present to obtain control of the effects of acetylcholine released by cells damaged by the cold virus.

Administration: Adult dosage is 1 capsule every 3 hours as needed; daily dose should not exceed 6 capsules.

Source: The Upjohn Company, Kalamazoo 99, Mich.

RUCON

Description: Capsules each containing rutin 0.1 Gm.; vitamin C 0.1 Gm.; and dicalcium phosphate anhydrous 0.4 Gm.

Form Supplied: Bottles of 100 capsules.

Action: An aid in correcting increased capillary fragility and permeability in conditions such as hypertension.

Administration: As prescribed by physician.

Source: Parke, Davis & Co., Detroit 32, Mich.

THENYLENE-A.P.C.

Description: Capsules each containing the antihistamine Thenylene (methapyrilene) hydrochloride 25 mg.; aspirin 0.23 Gm.; phenacetin 0.15 Gm.; and caffeine 30 mg.

Form Supplied: Bottles of 100 and 500 capsules.

Action: For treatment of the common cold using the combined antihistaminic-analgesic-antipyretic therapy.

Administration: Two capsules as soon as possible with onset of symptoms followed by 1 or 2 capsules at intervals of 3 or 4 hours. Prescription required.

Source: Abbott Laboratories, N. Chicago, Ill.

THENYLENE AND DESOXYN TABLETS

Description: Tablets each containing the antihistamine Thenylene (methapyrilene) hydrochloride 50 mg. and the cerebral stimulant Desoxyn (methamphetamine) hydrochloride 2.5 mg.

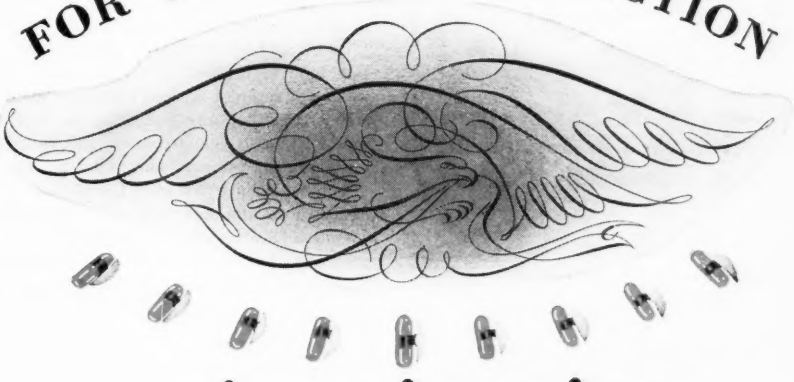
Form Supplied: Bottles of 100 and 500 tablets.

Action: Combines an antihistamine with a cerebral stimulant for the purpose of overcoming the feeling of drowsiness without affecting the antihistaminic action.

Administration: One tablet 1 to 4 times daily. If insomnia is produced, the combination should be discontinued.

Source: Abbott Laboratories, N. Chicago, Ill.

FOR OPTIMUM PROTECTION



nine vitamins

A · B_1 · B_2 · B_6 · Nicotinic Acid · Pantothenic Acid · C · D · E

ABDEC KAPSEAL's nine vitamins—A, the B-group, C, D, E—provide well-rounded vitamin therapy. Physicians prescribe them for optimum protection. From experience they know that for the average patient one ABDEC KAPSEAL daily (two during pregnancy and lactation) assures optimal intake of essential nutrients.

ABDEC® KAPSEALS®

comprehensive vitamin therapy

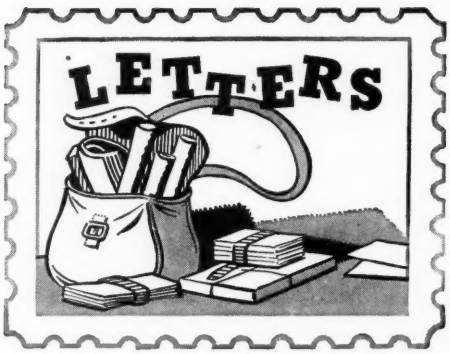
EACH ABDEC KAPSEAL CONTAINS

Vitamin A	5,000 U.S.P. units
Vitamin D	1,000 U.S.P. units
Mixed Tocopherols (Vitamin E factors)	5 mg.
Vitamin B_1 (Thiamine Hydrochloride)	5 mg.
Vitamin B_2 (Riboflavin)	3 mg.
Vitamin B_6 (Pyridoxine Hydrochloride)	1.5 mg.
Pantothenic Acid (As the sodium salt)	5 mg.
Nicotinamide	25 mg.
Vitamin C (Ascorbic Acid)	75 mg.

Supplied in bottles of 25, 50, 100 and 250-unit quantities regularly and frequently prescribed by physicians.

Parke, Davis & Company's "Know Your Pharmacist" advertising in general magazines is the only nation-wide public relations campaign in behalf of the retail pharmacist. Identify your store with this program by writing us for free reproduction of current advertisement on easel-backed card.

PARKE, DAVIS & CO. DETROIT 32, MICHIGAN



Good Neighbor Policy at Work

Upon his return from Tokyo as a member of the American Pharmaceutical Association's mission to Japan, Mr. F. Royce Franzoni put to work a one-man good neighbor policy in the Far East. The story of his recognition of a need, the steps he took toward relieving it, the cooperation of the Department of the Army as connecting link between donor and receiver, and the gratitude of the Japanese pharmacists for this thoughtful interest is all told in the following letters.—
THE EDITOR

Sirs:

While visiting Japan as a member of the A. PH. A. Mission to Japan in July, 1949, I visited and inspected the libraries of many pharmaceutical schools and manufacturers. In every case I noticed an almost complete absence of scientific literature, particularly pharmaceutical, for the period subsequent to 1936. This observation was also made by the other members of the Mission and was commented upon in our report to General MacArthur.

To fill this void in the Japanese science libraries is a tremendous task. Japanese funds that remain in the United States are still frozen so that any purchase of texts or periodicals is limited by the extremely meager funds available to the occupation authorities.

It occurred to me that my own library contained a number of complete sets of publications issued since 1936 that I could donate to the Japanese. An inquiry to the Department of the Army brought me shipping instructions and the Journal of the A. PH. A. and other periodicals I had gathered were started on the way to Japan.

Should any other A. PH. A. members wish to provide texts or collections of publications for shipment to Japan, I feel sure that there would be no expense involved other than that of getting material to a central point for consolidation and for overseas packing. The procedure is very simple. Send a list of the material available and its approximate weight and cubic dimensions to:

Special Projects Group
Office of the Undersecretary of the Army
Washington 25, D. C.

Shipping instructions will be sent promptly from this office. (Material should *not* be shipped without instructions from the Special Projects Group!)

Practically any book or collection of journals that would be of interest to an American pharmacist will be of interest to the Japanese pharmacists. I am certain that any donations for their libraries would be greatly appreciated and would aid materially in the reconstruction of Japan.

The attached letter from the Department of the Army shows the organized system for replenishing Japanese libraries and the Japanese letters show receipt of material at the destination intended.

Washington, D. C. F. ROYCE FRANZONI

Dear Mr. Franzoni:

Grateful acknowledgment is made of your donation for use in Japan of twelve years' supply of AMERICAN PHARMACEUTICAL ASSOCIATION Journals dating trom 1936 to 1948, and other periodicals.

These journals have been shipped to Civil Information and Education Service, SCAP, from where they will be distributed to the scientific agency, university or library that can use them most advantageously.

Your generosity in contributing these valuable journals for use in Japan is greatly appreciated by the Department of the Army.

Chief, Special Projects Group FAOA
KENNETH W. FOSTER
Lt. Colonel, GSC

Dear Mr. Franzoni:

It is already five months since we bade farewell in Tokyo. I trust this will find you in good health and are enjoying your study there in America.

I wish to thank you for sending to me the Journals of the AMERICAN PHARMACEUTICAL ASSOCIATION and others through GHQ, SCAP, which reached me several days ago. I will keep them at the library of our Association as a remembrance of your kindness and give our members the opportunity to read them.

As to the recommendation made by you, we are giving our most careful attention and making every possible effort to put it into practice. Although we are facing various difficulties for the separation of medicine from pharmacy, mainly due to strong opposition by the Japan Medical Association, we are determined to do our best for the achievement of this end. We earnestly wish to ask for your guidance and help in this regard.

Tokyo, Japan

Yours most sincerely,
KAZUO TAKANO
Executive Director, J. P. A.

FORECAST

We predict an exceptional selling opportunity for you from lipotropic therapy and the newest development in thyroid therapy.

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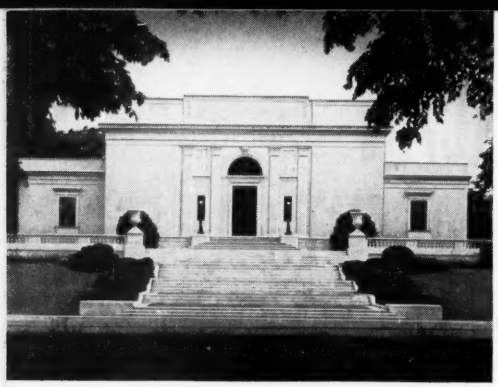

STRAIGHT FROM HEADQUARTERS

By ***ROBERT P. FISCHELIS,*** Secretary
AMERICAN PHARMACEUTICAL ASSOCIATION

Pharmacists Should Prepare for U. S. P. Convention

EVERY ten years it becomes the duty of pharmacists and physicians to arrange for the continuance of the revision and publication of the U. S. Pharmacopoeia. On May 9, 1950, the U. S. P. Convention will hold its decennial meeting at Washington, D. C. The Convention will select a Revision Committee of sixty members as well as officers and a Board of Trustees to carry out the mandates of the Convention for the next decade.

There are six trustees to be elected in addition to a President, Vice-President, Secretary, and Treasurer, all of whom are nominated from the floor and elected by ballot. Of the six elected members of the Board of Trustees, at least two are required to be delegates from pharmaceutical colleges or organizations and at least two are required to be delegates from medical colleges or organizations. Of the Revision Committee, twenty must be qualified in medical sciences and forty in pharmaceutical and allied sciences.

Every state and national pharmaceutical association is entitled to delegates to the Convention, as are state and national medical societies. All recognized colleges of pharmacy and medicine are also entitled to delegates. These delegates elect the officers, trustees, and Revision Committee.

The meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION in Atlantic City, a week before the U. S. P. Convention in Washington, offers opportunity for the discussion of the eligibility of various individuals to these positions. American Pharmacy must elect its strongest and most capable representatives. That is what American medicine will do. These elections are not to be taken lightly, because the U. S. P. should be truly representative of the best thought of all elements in medicine and pharmacy in order to serve the public health to best advantage.

Every ten years medicine and pharmacy unite in preparing for the production of a new U. S. P. It has become a book of standards for drugs of proven value and is an official compendium under Federal and State Food Drug, and Cosmetic Laws. The partnership of pharmacy and medicine in this venture demands leadership in scientific and professional practice. Pharmacy must take stock at once of the abilities of its outstanding professional personnel to make a worthwhile contribution to this cause and then get behind the men who are nominated to make sure they are elected.

This is not a responsibility to be left to others. It is one which pharmacists must accept if the Pharmacopoeia is to reflect modern pharmaceutical practice.

The details of the procedure to be followed in carrying on the business of the Convention are given in the proposed revised Constitution and By-Laws of the Convention, which will be presented for adoption at Washington on May 9.

In order that A. PH. A. members may be fully informed of the proposed revised Constitution and By-Laws, we are printing both

in full in the February issue of the *Scientific Edition* of THIS JOURNAL. Delegates to the Convention, in particular, should be aware of the proposed changes.

Health Information Foundation

LAST November and again in the December issue of THIS JOURNAL, we referred to efforts being fostered under private auspices to develop sound information on the sources and methods of distributing good medical care. Sponsored largely by the drug industry, the Health Information Foundation has been organized to meet the need for appraisal of existing health services and to point out the means at hand for obtaining good quality medical care. This will meet one of the deficiencies in our present situation which was referred to in the policy statement adopted by the AMERICAN PHARMACEUTICAL ASSOCIATION at the Jacksonville convention. Dissemination of information to the public on voluntary health insurance programs and on the availability of good medical care will constitute a significant portion of the activities to be undertaken by the new Foundation.

In developing and carrying on its program, the Foundation is expected to draw upon the wealth of material which has already been assembled by existing governmental and private agencies. The emphasis will be on allaying ignorance and lack of information which have contributed so much to the confusion in the public mind with regard to health programs and sickness insurance.

With about two-fifths of the public equally divided on the issue of compulsory vs. voluntary health insurance and the other three-fifths uninformed or undecided as to what facilities exist and how the issue should be met, it is felt by the sponsors of the Health Information Foundation that a well-conceived and effectively directed program of fact finding and fact dissemination is essential to the further development of a sound program of voluntary health insurance and full utilization of all current resources available to the public for medical care.

To direct this Foundation the Executive Committee has secured the services of Admiral William H. P. Blandy who has just retired as Commander-in-Chief of the Atlantic Fleet of the United States Navy. Admiral Blandy has a splendid record of administrative accomplishment and can be counted upon to marshall the available factual and educational resources placed at his command.

Some sectors of the drug industry will be expected to make funds available for the Foundation in substantial amounts. Others will be expected to supply information and evaluate plans and procedures. Still others will be called upon to disseminate information especially at the point of contact between pharmacist and prospective patients.

Admiral Blandy, as President of the Foundation, is expected to make a number of public addresses describing the purposes and activities of the Foundation. We hope that he will be able to address one of the general sessions at the Atlantic City convention of the A. PH. A.

If the Foundation makes the constructive approach to the solution of this problem which is expected, it may turn out to be the agency which, more than any other, will be responsible for public acceptance of the expansion of sound programs of health and medical care under private auspices. More detailed information on the Foundation and its program will be available in the March issue of THIS JOURNAL.

Additions and Changes in Staff

BEGINNING with the February issue of THIS JOURNAL, Mr. Harold V. Darnell will take over the managing editorship of the *Practical Pharmacy Edition*. The pharmacy editorship previously held by Mr. Darnell will be combined with the managing editorship under the title of Editor.

Mr. Darnell will be succeeded as Assistant to the Secretary by Miss Alice L. Richards, formerly Executive Assistant to the Director of the Pharmaceutical Survey.

Mrs. Genevieve Gisler who has acted as research and editorial assistant to the Secretary, becomes Assistant Editor of the *Practical Pharmacy Edition*.

Mr. Darnell will continue to have charge of the details of National Pharmacy Week and the continuing public health information program.

Dr. Albert M. Mattocks, formerly of the faculty of Western Reserve University, is now in charge of the A. PH. A. Laboratory.

BENTONITE As a Major Component of Ointment Bases

By Roy C. Darlington and Earl P. Guth***

THE need for efficient ointment bases is evidenced by the voluminosity of literature pertaining to investigations in this direction. The properties of many types of bases have been studied and a review of the literature indicates that there is an increased demand for hydrophilic or water-miscible ointment bases.

The use of bentonite as a major component of ointment bases has been infrequently mentioned in the literature, although it has been recommended as a component of coal-tar pastes (1). Bentonite has also been reported to be satisfactory as a constituent of sunburn preparations (2), but unsatisfactory for use in the preparation of acid containing ointments to be used in the chemical debridement of burns (3). Because of the dearth of information concerning the properties of ointments and ointment bases containing bentonite, it is believed that such a study would constitute an unequivocal contribution. The results of two phases of this study are reported in this paper.

Experimental

Part I—Formulation of Bentonite Bases and Ointments

(1) A comparative study of some properties of several type bases and ointments, with and without bentonite as a major component.

(2) A study of some properties of buffered bentonite bases and ointments.

(3) A study of some properties of bentonite bases and ointments containing surface-active agents.

Standard pharmaceutical techniques were used to prepare the three groups of bases and ointments. All bases that contained bentonite[1] were prepared by sprinkling the bentonite on the liquid portion of the base and stirring at a slow rate of speed in a mechanical mixer[2] until a homogeneous preparation resulted. The following medicaments, sulfathiazole (5% *w/w*), ammoniated mercury (5% *w/w*), boric acid (10% *w/w*), phenol (2% *w/w*) and iodine (7% *w/w*)[3] were, where possible, incorporated into all bases. Pharmaceutic necessities such as potassium iodide and glycerin were used in the same concentrations as are found in Iodine Ointment, N. F. VIII and Phenol Ointment, U. S. P. XIII.

(1) Type Bases and Ointments, with and without Bentonite

The purpose of this series was to observe the effect of bentonite on the properties of several types of ointment bases. Several types of bases were prepared which contained bentonite[4] as a major component. The same types of bases were then prepared with the bentonite being omitted. It was necessary to modify the formulas of most of the bases when the bentonite was omitted in order to obtain a preparation of suitable consistency. In such cases substances such as distilled water, petrolatum, wax, etc., were used to produce bases of ointment consistency. The formulas of the bases are as follows:

Presented before the Section on Practical Pharmacy, AMERICAN PHARMACEUTICAL ASSOCIATION, Jacksonville, Fla., April, 1949.

* Fellow of the American Foundation for Pharmaceutical Education. Present address: College of Pharmacy, Howard University, Washington, D. C.

** Professor of Pharmacy, Ohio State University, Columbus, Ohio.

[1] B. C. Volclay bentonite (American Colloid Co.) was used.

[2] Hamilton Beach Mixer, Model E.

[3] Iodine used only in the study of type bases.

[4] An extensive unpublished study of the characteristics of gels formed by bentonite under varied conditions preceded this study. The results of the study referred to made it possible to predict the amount of bentonite that should be used to create an ointment base of proper consistency.

BASE 1

Bentonite Base

Bentonite	20.0
Glycerin	10.0
Distilled water	70.0

BASE 2

Bentonite Base with Duponol C

Bentonite	20.0
Duponol C[a]	0.5
Glycerin	10.0
Distilled water	69.5

BASE 3

Bentonite Base with Surface-Active Agents

Bentonite	28.0
Tween 20[b]	4.0
Tween 80[c]	8.0
Propylene glycol	10.0
Glycerin	5.0
Methylparaben	0.15
Propylparaben	0.05
Distilled water	44.8

BASE 4

Stearic Acid Vanishing Cream Base with Bentonite

Stearic acid	7.0
Cetyl alcohol	0.7
Span 60[d]	5.5
Span 80[e]	1.4
Tween 60[f]	4.0
Methylparaben	0.15
Propylparaben	0.05
Bentonite	10.5
Distilled water	70.7

BASE 5

Stearic Acid Vanishing Cream Base

Stearic acid	7.0
Cetyl alcohol	2.5
Span 60	5.5
Span 80	1.4
Tween 60	4.0
Methylparaben	0.15
Propylparaben	0.05
Distilled water	79.4

BASE 6

Anhydrous Absorption Base with Bentonite

Arlacel C[g]	5.35
White petrolatum	58.00
Anhydrous lanolin	9.00
Span 80	0.90
Bentonite	26.75

BASE 7

Anhydrous Absorption Base

Arlacel C	5.35
White petrolatum	80.00
Anhydrous lanolin	9.00
Span 80	0.90
White wax	4.75

BASE 8

Water-in-Oil Emulsion Base with Bentonite

Arlacel C	5.30
White petrolatum	41.40
Cholesterol	2.00
Anhydrous lanolin	5.30
Tween 60	1.00
Bentonite	14.00
Distilled water	31.00

BASE 9

Water-in-Oil Emulsion Base

Arlacel C	5.30
White petrolatum	41.40
Cholesterol	2.00
Anhydrous lanolin	5.30
Tween 60	1.00
Distilled water	45.00

---

[a] Du Pont's Sodium Lauryl Sulfate.
[b] Polyoxyalkalene Sorbitan Monolaurate (Atlas Powder Co.).
[c] Polyoxyalkalene Sorbitan Monoleate (Atlas Powder Co.).
[d] Sorbitan Monostearate (Atlas Powder Co.).
[e] Sorbitan Monoleate (Atlas Powder Co.).
[f] Polyoxyalkalene Sorbitan Monostearate (Atlas Powder Co.).
[g] Sorbitan Sesquioleate (Atlas Powder Co.).

Discussion: The powdered medicaments were incorporated into bases 6 and 7 by the emulsification of aqueous suspensions in the warmed bases. The water content of the resultant ointments varied from 24 to 30%. Attempts to incorporate iodine or phenol into base 9 were unsuccessful, thus corroborating a report that volatile materials and alcohols were apparently incompatible with absorption bases of this type (4). It is noteworthy that when bentonite was included as a major component of this type base no such incompatibility existed. It is generally known that bentonite has the property of stabilizing both oil-in-water and water-in-oil emulsions. It was also found that the pharmaceutical elegance of the several types of bases was enhanced by the inclusion of bentonite, all such bases being readily removed from the skin by washing with water. Mold growth, which occurred in the non-fatty bentonite bases, was prevented by the addition of Methylparaben, U. S. P. XIII (0.15%) and Propylparaben, U. S. P. XIII (0.05%).

(2) Buffered Bentonite Bases and Ointments

This series of bases and ointments were prepared to ascertain the feasibility of preparing buffered bentonite ointment bases. Since buffers possess significant acid or base reserve only within a limited *p*H range, a series of buffer mixtures were used thus permitting the observation of the *p*H variation of bases prepared from buffer mixtures covering a comparatively wide *p*H range. The bases, containing bentonite, glycerin and buffer mixture, were prepared by adding the bentonite, in sufficient quantity, to the glycerin and buffer mixture in a mechanical mixer. The preparations were stirred at a slow rate of speed until homogeneous. The amounts of the respective components were then calculated from the amount of bentonite that had been added. The formulas with the *p*H of the respective buffer mixtures used are shown as follows:

BASE 10

Bentonite	25.0
Glycerin	10.0
Buffer mixture[a] (*p*H 1.2)	65.0

BASE 11

Bentonite	25.0
Glycerin	10.0
Buffer mixture (*p*H 2.4)	65.0

BASE 12

Bentonite	25.0
Glycerin	10.0
Buffer mixture (*p*H 3.3)	65.0

BASE 13

Bentonite	25.0
Glycerin	10.0
Buffer mixture (*p*H 2.0)	65.0

BASE 14

Bentonite	19.0
Glycerin	10.8
Buffer mixture (*p*H 9.9)	70.2

BASE 15

Bentonite	16.7
Glycerin	11.1
Buffer mixture (*p*H 10.6)	72.2

BASE 16

Bentonite	16.7
Glycerin	11.1
Buffer mixture (*p*H 11.3)	72.2

BASE 17 (CONTROL)

Bentonite	25.0
Glycerin	10.0
Distilled water (*p*H 6.4)	65.0

[a] The buffer mixtures used in the respective bases are shown in Table I.

The *p*H of the buffered bentonite bases was determined at the time of preparation and at various intervals thereafter for a period of fifteen weeks. A Beckman *p*H Meter, Industrial Model M, was used for the *p*H determinations which were made at room temperature.[5] It was realized that glass electrodes made of standard electrode glasses are subject to sodium ion errors in alkaline solutions and that this error increases in magnitude with increasing sodium ion concentrations, *p*H or temperature (5). Since corrections were not made for such *p*H determinations, it may be assumed that the recorded *p*H readings of the highly alkaline bases and ointments are approximations. The *p*H variation of the buffered bentonite bases over the specified interval are shown in Table I.

Ointments of sulfathiazole, ammoniated mercury, boric acid, and phenol were prepared from each of the above-mentioned bases. The *p*H of the ointments was recorded at the time of preparation and fifteen weeks after preparation. The results are recorded in Table II.

Discussion: The results obtained indicate that it is feasible, by means of properly selected buffer mixtures, to adjust the *p*H of bentonite bases. The significance is obvious when it is realized that with many drugs the *p*H of the vehicle determines whether maximum stability or activity results upon incorporation. The buffering effect of the buffers used was found to be less transient in the acid range.

As was expected the properties of the medicament were of much significance in determining the *p*H of the ointments. The results suggest that it is impractical to attempt to buffer boric acid ointments and that with the other three medicaments the buffering effect of the bases is more effective in the acid range. It is reasonable to assume that the use of buffered bentonite bases and ointments is not only practicable but, in many instances, may be highly advantageous. However, in view of the complexity of bentonite, it is readily apparent that the results obtained are predictive only in a general way and that the behavior of bentonite in the presence of other buffer mixtures and other medicaments must of necessity be ascertained by empirical experiments.

[a] Temperature variation during tests: 26–30°.

TABLE I—*p*H VARIATION OF BUFFERED BENTONITE OINTMENT BASES

Base	Buffer system used in preparation of base	*p*H of buffer mixture	*p*H of base at time of preparation	*p*H of base 18 hours after preparation	*p*H of base 72 hours after preparation	*p*H of base 96 hours after preparation	*p*H of base 15 weeks after preparation
10	(0.1 *M* Glycine–0.1 *M* NaCl)–0.1 *N* HCl	1.2	4.0	4.4	4.4	4.3	4.1
11	0.2 *M* KHphthalate–0.1 *N* HCl	2.4	5.3	5.5	5.5	5.6	5.1
12	0.2 *M* KHphthalate–0.1 *N* HCl	3.3	6.0	6.2	6.3	6.3	6.3
13	(0.1 *M* Glycine–0.1 *M* NaCl)–0.1 *N* HCl	2.0	6.8	7.0	7.0	7.0	6.7
14	0.2 *M* Na_2HPO_4–0.1 *N* NaOH	9.9	8.3	8.1	8.0	8.0	7.6
15	0.2 *M* Na_2HPO_4–0.1 *N* NaOH	10.6	9.6	9.1	8.9	8.9	7.4
16	0.2 *M* Na_2HPO_4–0.1 *N* NaOH	11.3	10.6	10.5	10.2	9.6	7.7
17	Distilled water	6.4	7.8	7.7	7.7	7.7	6.8

TABLE II—*p*H VARIATION OF BUFFERED BENTONITE OINTMENTS

Base	Sulfathiazole		Boric Acid		Ammoniated Mercury		Phenol	
	*p*H[a]	*p*H[b]	*p*H[a]	*p*H[b]	*p*H[a]	*p*H[b]	*p*H[a]	*p*H[b]
10	4.2	4.2	3.8	3.9	6.7	6.9	4.2	4.8
11	5.5	5.6	4.5	4.6	6.4	7.0	5.5	5.9
12	6.3	6.2	4.7	4.8	6.6	7.0	6.4	6.5
13	6.8	6.8	4.7	4.8	7.0	7.5	7.2	7.4
14	7.6	7.4	5.3	5.3	7.9	7.8	7.8	7.8
15	7.8	7.4	5.3	5.3	8.3	7.8	8.0	8.1
16	8.0	7.5	5.2	5.3	9.0	8.4	8.2	8.3
17	7.3	7.0	5.0	5.0	7.3	7.6	7.3	7.4

[a] *p*H at time of preparation. [b] *p*H 15 weeks after preparation.

TABLE III—*p*H VARIATION OF UNBUFFERED BENTONITE SURFACE-ACTIVE AGENT BASES AND OINTMENTS

Base			Boric Acid		Phenol		Sulfathiazole		Ammoniated Mercury	
	*p*H[a]	*p*H[b]	*p*H[a]	*p*H[b]	*p*H[a]	*p*H[b]	*p*H[a]	*p*H[b]	*p*H[a]	*p*H[b]
18	8.1	7.4	5.2	5.4	7.9	7.9	7.5	7.7	8.1	8.0
19	8.1	7.0	5.2	5.4	7.9	7.9	7.5	7.7	8.2	8.1
20	8.0	7.3	5.3	5.4	7.9	7.9	7.6	7.1	8.2	8.0
21	8.1	6.9	5.3	5.4	7.9	7.9	7.4	7.1	8.2	8.0

[a] *p*H at time of preparation. [b] *p*H three weeks after preparation.

(3) Bentonite Surface-Active Agent Bases and Ointments

In this series a study was made of the effect of various concentrations of non-ionic surface-active agents on the properties of bentonite bases and ointments. Four bases were prepared in which the total concentrations of the surface-active agents (tween 60 and tween 80) varied from 5 to 10%. The formulas are shown below:

BASE 18

Tween 60	2.50
Tween 80	2.50
Glycerin	4.00
Propylparaben	0.05
Methylparaben	0.15
Bentonite	22.00
Distilled water	68.80

BASE 19

Tween 60	3.00
Tween 80	3.00
Glycerin	5.00
Propylparaben	0.05
Methylparaben	0.15
Bentonite	24.00
Distilled water	64.80

BASE 20

Tween 60	4.00
Tween 80	4.00
Glycerin	5.00
Propylparaben	0.05
Methylparaben	0.15
Bentonite	24.00
Distilled water	62.80

BASE 21

Tween 60	5.00
Tween 80	5.00
Glycerin	5.00
Propylparaben[a]	0.05
Methylparaben[a]	0.15
Bentonite	24.00
Distilled water	60.80

[a] Minimum concentrations that prevented mold growth in non-fatty bentonite bases.

The ointments of sulfathiazole, ammoniated mercury, boric acid, and phenol were prepared from each of the above bases. The *p*H of the bases and ointments was recorded at the time of preparation and three weeks after preparation. The results are shown in Table III. It was found that the use of more than 6% of the two surface-active agents did not improve the appearance of these bases.

Part II—Cup-Plate Tests of Bases and Ointments

The afore-mentioned bases and ointments were tested by a modified F. D. A. Agar Cup-Plate Method, using the following organisms: *E. typhosa* (U. S. D. A. strain), *S. aureus* (U. S. D. A. 209 strain) and *E. coli* (Levine strain). The stock cultures[6] had

[6] Supplied by Department of Bacteriology, The Ohio State University.

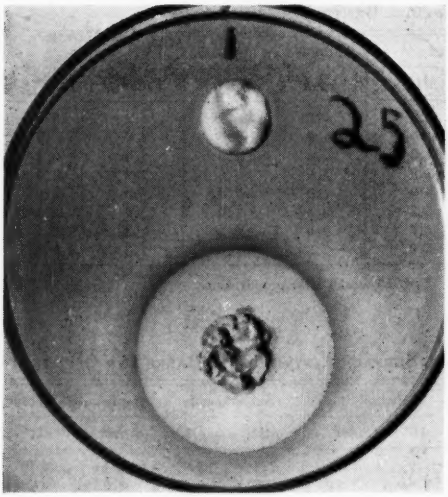

Fig. 1. Cup-plate test with ammoniated mercury (5%) against E. coli. *Top Cup—Ammoniated Mercury Ointment, U. S. P. XIII. Bottom Cup—Ammoniated mercury in base 10.*

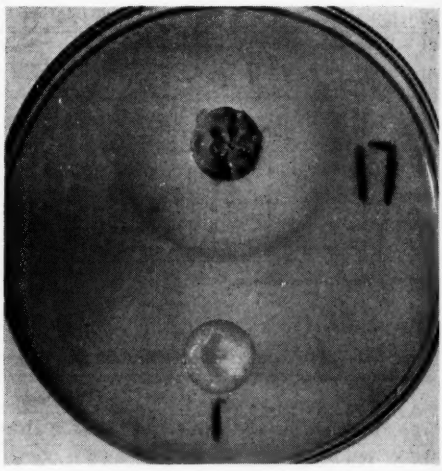

Fig. 2. Cup-plate test with boric acid against E. coli. *Top cup—Boric acid in base 10. Bottom cup—Boric Acid Ointment, U. S. P. XIII.*

been kept on plain agar slants at 4° and subcultured every thirty days. White Ointment (U. S. P. XIII)[7] was included for testing purposes.

Experimental: The organisms were inoculated into tubes of sterile nutrient broth (10 cc.), incubated at 37.5° for twenty-four hours and transferred daily in this broth for at least three days each time before use as an inoculum for the nutrient agar from which the pour plates were prepared. The composition of the nutrient broth was:

Armour's Peptone (for disinfecting testing)	1.0
Armour's beef extract	0.5
Sodium chloride	0.5
Distilled water	100.0

*p*H adjusted to 6.8

The test organism was inoculated into sterile nutrient agar[8] at 42° using 0.1 cc. of a twenty-four hour growing broth culture for each 20 cc. of the nutrient agar medium. The plates were poured at this temperature and each plate contained approximately 20 cc. of the inoculated medium. When the agar had solidified, the plates were placed in the cold room (4°) for about ten minutes to insure complete hardening of the agar. The cups were cut in the agar plates with a sterile cork borer (15-mm. diameter) and the plugs of agar were removed with forceps. The bottoms of the cups were sealed with 2 drops of melted agar. The test substances were placed in the cups with sterile applicator sticks, and in all instances precaution was taken to insure intimate contact of the test substance with the sides of the cup. The plates were then incubated, in an upright position, at 37.5° for twenty-four hours, after which time the zones of inhibition were measured. A Quebec Colony Counter and a millimeter rule were used to measure the zones. The results of the tests are shown in Table IV.

Results: In the tests, the measure of effectiveness of the anti-infectives was taken as the amount of complete inhibition of growth of the test organism produced. The order of the over-all effectiveness of the anti-infectives tested was ammoniated mercury, boric acid, phenol and sulfathiazole and all were most effective against *E. typhosa*. The results of the tests show that the medicaments were more active in the hydrophilic bentonite bases and of those tested only ammoniated mercury exhibited any activity when incorporated in White Ointment, U. S. P. XIII. The difference in activity of Ammoniated Mercury Ointment, U. S. P. XIII and of ammoniated mercury in a bentonite base is shown in Fig. 1.

Phenol, in the concentration used, was found to be ineffective when tested in bases containing fatty substances. This is in con-

[7] Designated in table as Base 22.
[8] Bacto Nutrient Agar Dehydrated (6).

TABLE IV—RESULTS OF CUP-PLATE TESTS WITH OINTMENTS

Base	Zone of Inhibition in Millimeters											
	Staphylococcus aureus				*Escherichia coli*				*Eberthella typhosa*			
	Sulfathiazole	Boric Acid	Ammoniated Mercury	Phenol	Sulfathiazole	Boric Acid	Ammoniated Mercury	Phenol	Sulfathiazole	Boric Acid	Ammoniated Mercury	Phenol
1	0.0 (4.0)[a]	9.0	7.0	3.0	0.0 (15.0)	6.0	8.0	0.0	0.0 (5.0)	9.0	12.0	0.0
2	0.0 (6.0)	8.0	9.0	4.0	0.0 (16.0)	5.0	8.0	2.0	0.0 (7.0)	9.0	10.0	6.0
3	0.0 (7.5)	9.0	6.0	0.0	0.0 (17.0)	5.0	8.0	2.0	0.0 (7.5)	9.0	10.0	4.0
4	0.0	8.0	8.0	0.0	0.0	4.0	11.0	1.5	0.0	8.0	10.0	3.0
5	0.0	7.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	5.0	10.0	0.0
6	0.0	7.0	4.0	0.0	0.0	2.5	6.0	0.0	0.0	6.0	8.0	0.0
7	0.0	0.0	4.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	4.0	0.0
8	0.0	1.5	4.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	5.0	0.0
9	0.0	6.0	5.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	6.0	0.0
10	0.0 (18.0)	8.0	12.0	5.0	0.0 (15.0)	8.0	13.0	6.0	0.0 (20.0)	11.0	14.0	9.0
11	0.0 (18.0)	8.0	10.0	4.0	0.0 (16.0)	8.0	10.0	5.0	0.0 (21.0)	11.0	12.0	9.0
12	0.0 (18.0)	8.0	8.0	4.0	0.0 (16.0)	8.0	7.0	5.0	0.0 (21.0)	11.0	10.0	9.0
13	0.0 (18.0)	8.0	11.0	4.0	0.0 (16.0)	8.0	10.0	5.0	0.0 (21.0)	12.0	12.0	8.0
14	0.0 (18.0)	8.0	11.0	5.0	0.0 (10.0)	5.0	8.0	5.0	0.0 (21.0)	10.0	11.0	8.0
15	0.0 (18.0)	7.5	10.0	4.0	0.0 (18.0)	5.0	8.5	5.0	0.0 (21.0)	10.0	10.0	10.0
16	0.0 (18.0)	7.5	10.0	4.0	0.0 (18.0)	8.0	8.5	5.0	0.0 (21.0)	10.0	11.0	9.0
17	0.0 (18.0)	8.0	7.0	4.5	0.0 (15.0)	7.0	6.0	5.0	0.0 (21.0)	10.0	10.0	7.0
18	0.0 (6.0)	10.0	7.0	4.0	0.0 (5.0)	5.5	6.0	4.0	0.0 (19.0)	10.0	8.5	6.0
19	0.0 (6.0)	10.0	7?0	5.0	0.0 (5.0)	5.5	6.0	4.0	0.0 (18.0)	10.0	8.0	6.0
20	0.0 (6.0)	10.0	7.0	4.0	0.0 (7.0)	5.0	6.0	4.0	0.0 (19.0)	10.0	8.0	6.0
21	0.0 (6.0)	10.0	7.0	4.0	0.0 (7.0)	5.0	6.0	4.0	0.0 (19.0)	10.0	8.0	6.0
22	0.0	0.0	3.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	3.0	0.0

[a] Zones of partial inhibition of growth.

formity with the work of Clark (7) who reported that ointments of phenolic germicides had little if any antiseptic value in ordinary fatty bases unless they were of an exceptionally high concentration.

Sulfathiazole did not completely inhibit the growth of any of the test organisms, but it did produce zones of partial inhibition of growth when tested in non-fatty bentonite bases. The report of Fisher, *et al.* (8), is in agreement with these results.

Boric acid evinced considerable activity, especially when incorporated in the bentonite bases. The comparative activity of Boric Acid Ointment, U. S. P. XIII and boric acid in a bentonite base is shown in Fig. 2.

(*Continued on Page 126*)

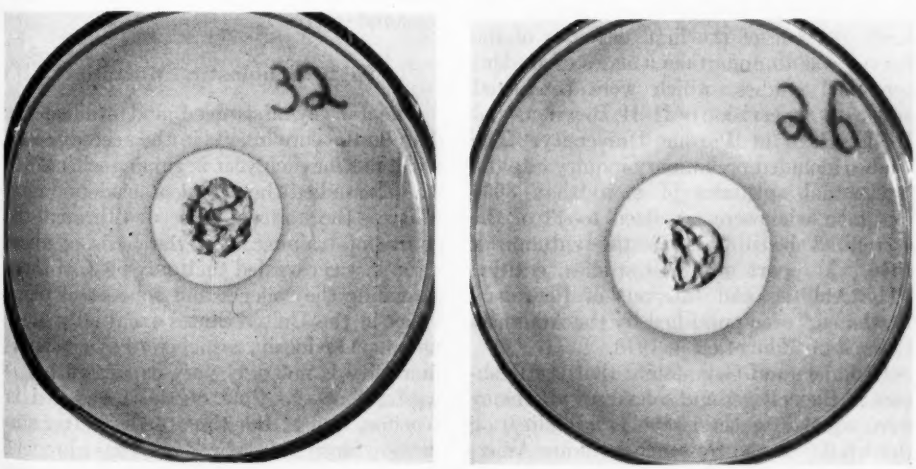

Fig. 3. Cup-plate tests of ammoniated mercury against E. coli. *Plate 32—Ammoniated mercury in unbuffered bentonite base. Plate 26—Ammoniated mercury in buffered bentonite base.*

SURVEY FINDINGS ANALYZED

. . . a review of the findings and recommendations of the Pharmaceutical Survey for the practicing pharmacist . . . . . .

SELECTION, GUIDANCE AND TESTING OF STUDENTS

THIS, the fifth of our series of articles analyzing the findings and recommendations of the Pharmaceutical Survey emphasizes the need for the selection, guidance, and testing of students in pharmacy in order to assure a continuous flow of superior students through the schools of pharmacy.

Relative Abilities of Pharmacy Students

The Director of the Survey, having served as president for many years of a large institution with a school of pharmacy, was aware of the fact that until recently many educators had held the idea that students in pharmacy did not exhibit as high an order of scholastic ability as students in other undergraduate courses such as liberal arts or pre-medical courses, for example. He felt that such an assumption should not be accepted or rejected without further investigation. Accordingly, one of the first activities of the Survey was to undertake a series of student personnel studies, which were conducted under the supervision of H. H. Remmers and N. L. Gage at Purdue University. The studies included preliminary inquiry into the intellectual aptitudes of more than 3000 freshmen who were admitted to 43 of the accredited institutions in the autumn of 1946. A report on these studies, entitled "The Abilities and Interests of Pharmacy Freshmen," was published by the American Council on Education in 1948.

Remmers and Gage found that the freshmen in the colleges and schools of pharmacy were equal in general scholastic ability, on the whole, to the freshmen entering American liberal arts colleges in 1946. On the other hand, they concluded from the performance on tests of scholastic ability and achievement that pharmacy freshmen that year were inferior, in general, to the freshmen in arts and sciences and in engineering but were generally superior to freshmen in agriculture and home economics. Pharmacy cannot be compared in this connection to medicine, dentistry, law, or veterinary science since the latter professions, by requiring two or more years of pre-professional education at the college level insure a better screening out of poor students.

In the autumn of 1947, a similar aptitude inquiry was carried out by Remmers and Gage. This inquiry covered nearly 1400 freshmen in 17 institutions and resulted in essentially the same findings as the 1946 study.

Personnel Practices

The Survey also considered it important to look into the matter of how the schools of pharmacy handle student personnel practices. Information on practices for admission, testing, and guidance was furnished by 34 institutions. Very few of these institutions were following well-organized plans to assure the admission and advancement to graduation of those students who are superior in personality, ability, and professional interest.

High Scholastic Mortality

The Survey assembled and studied the data on the enrollments in the accredited institutions for each year beginning with 1931–32. It studied the extent of academic mortality as the students proceeded through the course of training. On the basis of these data, it was revealed that only 60% of those attending the colleges and schools of pharmacy in the United States eventually graduated. Obviously, a high rate of academic mortality is not only very expensive but is wasteful of the time of those engaged in teaching and of the time of the better students. Since the postwar years have brought about an unprecedented increase in the enrollment of students in the pharmacy schools—over 21,000 undergraduate stu-

dents for the current academic year—the opportunity exists as never before to select students of more than average ability. In this way, academic mortality may be reduced to a minimum and more men and women of superior ability would become available for the practice of pharmacy. As the Survey pointed out, "The quality of today's students will determine the prestige of the profession in the years of the generation ahead."

Recommendations

To assure the selection and advancement of superior students in the colleges of pharmacy, the Survey made recommendations which may be summarized as follows:

1. Each of the accredited schools of pharmacy should utilize recognized intelligence and aptitude tests as factors for the selection and admission of students and should maintain facilities, under adequate direction and supervision, for the continuous guidance and counseling of students.

2. The American Association of Colleges of Pharmacy should be urged to take steps to develop and validate specialized aptitude and achievement tests for pharmacy students. It was further suggested that the tests should be administered by the individual colleges at the time of admission, during the period of education and training, and prior to graduation. In this connection, it was recommended that the institutions provide for the cost and that the American Association of Colleges of Pharmacy seek the counsel and cooperation of the Educational Testing Service, located at Princeton, N. J.

3. It was recommended that the American Foundation for Pharmaceutical Education make provision for the preparation, distribution, and revision of an appropriate handbook containing essential current facts relating to the profession of pharmacy. It was contemplated that such a handbook would be for the use of vocational counselors and prospective students in pharmacy.

4. It was urged that each state and local pharmaceutical association create a standing Committee on Superior Students for Pharmacy. This Committee, working in cooperation with the colleges and schools of pharmacy of the State, would seek to identify secondary school students and college students of marked ability; to deepen the interest of such students in the study of pharmacy; and, when necessary, to enlarge their opportunity to proceed with education and training for the profession.

Support the 1950 Heart Campaign

The AMERICAN PHARMACEUTICAL ASSOCIATION is pleased to devote the front cover of this issue of THIS JOURNAL to the 1950 Heart Campaign of the American Heart Association and to participate as a co-sponsor in this and other ways in the fight against the Nation's No. 1 killer—heart disease.

During the month of February, the American Heart Association and affiliated groups have as their goal the raising of a $6,000,000 fund for research in heart disease, community service and education.

Through the fine cooperation of the wholesale druggists of the United States, under the sponsorship of the National Wholesale Druggists' Association, more than 90% of all pharmacies in the Nation have received plastic heart coin-collectors for counter display. Other drug groups joining with the A. PH. A. and the N. W. D. A. in the program include the National Association of Retail Druggists and the National Association of Chain Drug Stores.

It is now up to the pharmacists of America to do their best to have these coin-collectors filled.

Through its public relations program, the A. PH. A. is continuing its endeavors to develop the pharmacy as a health information center. Currently, more than 15,000 pharmacists are receiving the bi-monthly information service dealing with cardiovascular diseases. Research and educational activity directed to the control of disease must be supported with sufficient funds in order to be effective. It is therefore most fitting that pharmacists extend their health promotional activities by participating also in the 1950 Heart Campaign. Give, and urge others to do likewise.

Masking the Taste of the Vitamin B Complex

. . . A PRELIMINARY STUDY . .*

By LYLE B. LATHROP† and RALPH W. CLARK‡

SINCE the recognition of the vitamin B complex as a requirement in our diet, many pharmaceutical preparations have been manufactured and compounded to provide this group of vitamins. These medicines have been produced in many forms such as tablets, capsules, and liquid mixtures, or solutions for oral use as well as sterile injectable solutions for parenteral use. The modes of administration of choice for oral use are tablets or capsules because the vitamin B complex has a bad taste. Yet, we find many solutions, mixtures, elixirs and syrups are prescribed and sold over the counter as more desirable forms for the patient because they are more easily swallowed by children and some adults and also because the dose combinations are more readily adjusted.

From an inspection of a number of liquid vitamin B complex proprietaries, it was apparent that an attempt had been made in a variety of ways to disguise the taste of the vitamins, and it was also evident that, for the most part, the disguising was not efficient. Still another observation made was that there was a wide difference in the concentrations of the vitamins in the different products, some of them containing very little of some of the vitamins.

It has been pointed out by Grote and Walker (1) that all too often the hit-or-miss procedure is followed in the flavoring of a pharmaceutical product, and that a study of a flavoring problem by analyzing it in the light of the basic concepts of taste perception and flavoring would lead directly to the selection of the flavors most suited to the particular material. If this statement is correct, the application of these basic concepts of taste perception and flavoring to the vitamin B complex should lead to a pleasant-tasting liquid preparation containing members of the vitamin B complex in adequate amounts.

Moncrieff (2) states that it is generally agreed that there are four basic tastes—salt, sour, bitter, and sweet—and that all other taste sensations are a combination of these with or without other altering factors. These other factors which may contribute to a taste sensation are odor, temperature, and physical consistency. He further states (3) that temperature has no one direct effect upon taste but exerts a variety of effects according to both the temperature and the taste. As to the effect of physical consistency on taste, attention has been called to the altering effect of viscosity, oiliness, grittiness, or limpidity upon the taste of a substance by Crocker (4).

In order to properly apply flavor studies to the vitamin B complex, the amount of vitamins which should be present must first be established. The National Research Council has published their 1948 edition of "Recommended Dietary Allowances" (5), in which they give the daily requirements for thiamine, riboflavin, and niacin, and state that other factors of the B complex are required, but that no exact amount can be recommended on the basis of studies so far completed. We find, however, that estimates (6) have been made on the daily requirements of pyridoxine hydrochloride and

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* Presented to the Practical Pharmacy Section, A. PH. A., Jacksonville meeting, April, 1949. A portion of the thesis submitted to the School of Pharmacy and the faculty of the Graduate School of the University of Kansas in partial fulfillment of the requirements for the degree of Master of Science.

The authors wish to express appreciation to the following firms for supplying materials: Eric Belar, Hoffmann-LaRoche, Inc., Eli Lilly and Company, Magnus, Mabee and Reynard, Inc., and the Upjohn Company.

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pantothenic acid and that they are usually included in commercial vitamin B complex preparations. For the experimental work of this study it was decided to make up a liquid vitamin B complex preparation containing the maximum daily requirement in each 4 cc. of solution. The test solution used contained the following amounts of the components of the B complex in each 4 cc. of solution:

Thiamine hydrochloride	1.8 mg.
Riboflavin	3.0 mg.
Niacinamide	18.0 mg.
Pyridoxine hydrochloride	1.5 mg.
Calcium pantothenate	10.0 mg.

Experimental

The preparation of solutions containing the above quantities of vitamins in 4 cc., to be tested for taste and odor, can be approached in two manners. The vitamins can be placed in one-half the amount of water and than mixed with the vehicles, or they can be placed directly in solution in the vehicles. In either case immediate difficulties arise. In the first place the riboflavin is only slightly soluble (1:10,000) in water, which does not permit the desired concentration. Any heat used must be used cautiously as some of the components of the vitamin B complex are unstable to heat. The flavors of some vehicles may also be damaged by heat. There is also the problem of stability. It was rather obvious, from the number of products available, both oral and injectable, that contained an even greater concentration of riboflavin than was desired in the test solution, that most pharmaceutical manufacturing houses were able to greatly increase the solubility of riboflavin. The U. S. P. states that riboflavin is more soluble in isotonic solution than in water. It also states that for the purpose of increasing solubility, the injection may contain nicotinamide, urea, or other suitable, harmless, solubilizing agents. These methods, however, did not, even with the addition of heat, produce a solution of the desired concentration that was stable upon cooling.

It was found that solutions of riboflavin in relatively high concentration could be made with the use of so-called solubilizers. Permission to use the patented (7) solubilizer owned by Hoffmann-La Roche was obtained and a generous supply of gentisic acid was furnished by that company. This process of making riboflavin solutions of high concentration consists essentially in adding the desired amount of riboflavin to a hot solution of solubilizer. When this solution has cooled, the other vitamins can be added to the solution. The gentisic acid not only increases the solubility of the riboflavin, but with the addition of the proper amount of alkali adjusts the *p*H of the solution to between 4 and 5. This range is considered as the optimal range for the stability of all the components of the vitamin B complex (7).

Recent studies on the therapeutic effects of gentisic acid indicate that it is non-toxic in many times the dose used here (8).

According to Fantus (9), an agreeable flavor is a necessity to pleasant medication, and certainly efficient flavoring is of prime consideration to the physician and his patient. In making use of flavoring agents to mask the taste of the vitamin B complex, we must first determine the odor and taste that is to be masked. Then we must determine which flavors out of the wide variety available are of value in masking this taste and odor. Of a certainty, general palatability must be considered in making any conclusions concerning these flavors, since any masking agent to be generally acceptable must of itself be of good flavor. The vitamin B complex had a bitter taste and unpleasant odor of varying degrees in all persons tested. Tests on each of the components showed that riboflavin and niacinamide are largely responsible for this bitter taste and unpleasant odor, with thiamine hydrochloride contributing somewhat. Pyridoxine hydrochloride and calcium pantothenate are practically odorless and tasteless.

Two Previous Studies

Two independent studies have been carried out on the palatability and relative value of various vehicles for masking the taste of bitter drugs. Wright (10) and Purdum (11) carried out studies on the relative masking efficacy of vehicles for bitter taste. Each of the investigators used different methods of evaluation. Both have merit. Purdum's (11) method consists of determining relative taste-disguising efficacy by taste threshold but does not take into account the general palatability of the product. Wright (10) attempts to determine relative palatability and to a lesser extent taste-disguising efficacy. A comparison of the best 13 vehicles

for masking bitter taste as determined by each of the two methods shows rather close agreement with the exception of one or two vehicles. These exceptions are vehicles that have good taste-masking ability but are not considered desirable as far as palatability is concerned. A comparison of the values placed on various vehicles by Wright (10) and Purdum (11) was used in our search for a vehicle to mask the taste of the vitamin B complex.

Tasting Panel Chosen

Not entirely convinced that these vehicles were the only ones worth further testing, a tasting panel of 10 chosen from the school of pharmacy was organized. This panel was composed of a cross section of available personnel and included professors, a storekeeper, and students. A group of selected vehicles, in combination with the vitamin B complex was submitted to the panel. In all, some 30 vehicles from the U. S. P. XIII, N. F. VIII, and Recipe Book III were tested. Of these vehicles, the three recommended most highly by the panel as being best suited to the task of masking the vitamin B complex were raspberry syrup, glycyrrhiza syrup, and cinnamon syrup.

These three vehicles combined with those appearing to be of value from the studies of Purdum and of Wright provide the following list to use alone or in combination to mask the taste of the vitamin B complex:

Syrup of prepared cacao N. F. VI
Syrup of cocoa N. F. V
Aromatic eriodictyon syrup
Compound sarsaparilla syrup
Raspberry syrup
Cherry syrup
Glycyrrhiza syrup
Cinnamon syrup

Careful scrutiny of this list reveals certain defects in some of the vehicles which caused them to be eliminated from further investigation. The two chocolate syrups were eliminated for the reason that they do not produce a product which is a clear solution. Another disadvantage they have is that they have been identified with sulfa preparations in many proprietaries. The aromatic eriodictyon syrup was eliminated on the basis of its alkalinity. Since the end product must have a *p*H of not more than 5 for some of the vitamin components to be stable, aromatic eriodictyon syrup is of little value for masking the taste of the vitamin B complex. The remaining vehicles were taken as suitable for further tests to determine their ability to mask the vitamin B complex.

The following testing procedure was carried out. A test solution was made of such concentration that the maximum daily requirement of each of the vitamins of the B complex was present in 2 cc. This aqueous solution was mixed with equal parts of selected vehicles and the mixtures placed in 1-dram vials. The vials were labeled by number only, with each number corresponding to a vehicle. They were submitted to the subjects, in groups of four or five. Accompanying each group of vials was an instruction sheet, a sample of which is shown herewith. The subjects were also verbally instructed how to carry out the test.

Instruction Sheet

1. Each instruction sheet is accompanied by four or five 1-dram vials. Each of these vials contains a daily requirement of the vitamin B complex dissolved in water and mixed with a vehicle.
2. Take the vials and instruction sheet home with you. As near as possible to 8 or 9 o'clock this evening carry out the tests as indicated below.
3. (*a*) Test the vials one at a time.
   (*b*) Keep away from distracting odors such as food, chemicals, etc., while testing.
   (*c*) Taste each vial and record your preference as 1, 2, 3, 4, or 5, in the space provided.
4. Your order of preference

Vial 1	___
Vial 2	___
Vial 3	___
Vial 4	___
Vial 5	___

5. Return vials and instruction sheet, filled in, before or at the time of next class period.

Results of Palatability Tests

According to this procedure the vehicles listed were tested for their palatability when mixed in equal parts with a concentrated vitamin B complex solution, thus including the maximum daily requirements in each 4 cc. Scoring was calculated on the basis of a percentage of a perfect first choice. Fifty-one persons were tested and, on the basis of scoring 4 for first choice and 0 for last, this gave us a perfect first choice score of 204. The total points scored and resulting calculated percentage score are tabulated below:

	TOTAL	PER CENT
Glycyrrhiza syrup	137	67.1
Cinnamon syrup	107	52.4
Compound sarsaparilla syrup	106	51.9
Raspberry syrup	93	45.5
Cherry syrup	63	30.8

The results as listed above are generally in accord with the findings of Purdum (11) and Wright (10). Even the controversial opinions concerning the syrups of glycyrrhiza and raspberry are evident. Undoubtedly Purdum's figures showing syrup of glycyrrhiza to be an excellent masking agent for bitter substances are correct, as it is found to be the best single masking agent of the ones tested for the B complex. On the other hand, Wright's placement of syrup of raspberry extremely high on the list for masking bitter substances does not hold up for the vitamin B complex. For that matter syrup of raspberry did not rate as well relatively on our tests as it did on Purdum's where it rated relatively low. The combination of these facts leads one to believe that possibly there is something in connection with the bitter taste of the vitamin B complex that was not present in the bitter test solutions used by these investigators. They used solutions of quinine bisulfate and quinine hydrochloride for bitter taste-masking and palatability tests. Solutions of these materials of the concentrations used by Purdum and Wright were made and tasted. In comparison to equal quantities of the test solution of the vitamin B complex, these materials did not have as intensely bitter or prolonged bitter taste. The fact that the vitamin B complex possessed an extremely bitter after-taste which was lacking in the quinine salts is of considerable importance in masking this taste.

Flavor Comparisons

The question was raised as to the relative choice of the vehicles had the vitamin B complex not been added. In other words, is syrup of glycyrrhiza a good masking agent for the vitamin B complex or is it that it is merely preferred as a flavor? In order to get some such comparison, the vehicles were again tested on the same group as before, but without the addition of the vitamin B complex. Syrup of cherry was dropped from further tests because of its low rating. Results of 51 tests are tabulated below:

	TOTAL	PER CENT
Raspberry syrup	127	82.3
Cinnamon syrup	90	58.8
Glycyrrhiza syrup	63	41.1
Compound sarsaparilla syrup	26	17.0
Possible maximum total	153	

By comparing the results obtained from the same group of individuals in both tests, we can conclude that syrup of glycyrrhiza is a good masking agent for the vitamin B complex and this in spite of the fact that it itself is not too highly rated as a flavor. The relative position of syrup of raspberry in the two tests should be noted. Apparently it is well liked as a flavor, but is not a desirable product for masking the taste of the vitamin B complex. It was reasoned that if a vehicle which was itself highly acceptable as a flavor but which had low masking ability were so treated that its flavor was abnormally prolonged, its masking efficiency would be increased. Syrup of raspberry, therefore, appeared to be well suited for use in carrying out the work of increasing the masking efficiency of a good flavor. Reports from the taste tests previously carried out indicated that syrup of raspberry, when mixed with the vitamin B complex and tasted gave, at first, a pleasant taste but was followed by a very bitter after-taste.

Viscosity A Factor

In previous statements concerning the physiology of taste it was said that one of the altering factors in the taste sensation produced by a substance was the viscosity of that substance. Increased viscosity of a substance will lower the number of molecules of that substance in contact with the taste buds at any one time (12). Therefore any increase in the taste of a substance by increasing the viscosity would be in prolonging rather than intensifying the taste. If a solution has a bitter taste, by increasing the viscosity of the substance we would do two things: decrease the intensity of the bitter taste and increase the length of time the bitter taste lasted. Now if besides increasing the viscosity of a bitter solution, another substance is added which is both intensely sweet and of greatly prolonged sweetness, the same ideas apply to the sweet substance as to the bitter. Theoretically then we should be able to take a solution of the vitamin B complex, increase its viscosity, and add a sufficient concentration of a substance with both intense and prolonged sweetness and thus mask the prolonged bitter taste of the vitamin B complex.

Corn syrup is a substance which may be used for increasing the viscosity of a solution.

Saccharin has both an intense and prolonged sweetness (13), if it is present in low concentration. With these factors in mind, a syrup base was made up according to the following formula:

Saccharin sodium	1 Gm.
Citric acid	5 Gm.
Corn syrup, *q. s.*	250 cc.

Syrup of raspberry was mixed in equal parts with this corn syrup base, and the mixture then mixed with equal parts of the vitamin B complex test solution. This solution was then tested as before. The results of 44 tests are listed below:

	TOTAL	PER CENT
Glycyrrhiza syrup	87	65.9
Raspberry syrup (with added mixture)	65	49.2
Cinnamon syrup	60	44.6
Compound sarsaparilla syrup	52	39.4
Possible maximum total	132	

Corn Syrup Base Experiments

The results of all the preceding tests indicated progress in masking the taste of the vitamin B complex and called for further experimentation with the corn syrup base formula. It was believed that the concentration of saccharin and citric acid might not be the optimal amount. As a result, the following solution was made up and found to be a better tasting product than the first corn syrup base:

Saccharin sodium	1 Gm.
Citric acid	5 Gm.
Corn syrup, *q. s.*	1000 cc.

Various extracts and flavor concentrates were tested with the corn syrup base formula 2, with the vitamin B complex present. The unpleasant odor was easily covered by a number of them as was the initial taste. However, the viscosity, saccharin, citric acid, and whatever flavor had been used did not entirely eliminate the bitter after-taste of the vitamin B complex. Finally, among the extracts and concentrates available, apricot was tried. This flavor exerted a much more prolonged taste sensation than did the other concentrates and it was found that by the addition of only a few drops of it to the thick test solution containing the vitamin B complex, the odor and taste of the vitamin B complex was covered and, contrary to previous experiments, the after-taste of the vitamins did not appear. This solution was tried on a number of individuals to obtain their reactions to it. All persons tested said that the product had a good odor. Some said that the product tasted good. None of the individuals thought the product had a bitter taste.

Use of Concentrated Flavors

Fantus (9) states that a simple flavor palls upon us sooner than a complex flavor, and points to the art of cookery and perfumery for the successful use of complex flavors and odors in our daily lives. As a result of these recommendations and the reactions of these individuals to the product, it was believed that by the addition of small amounts of other concentrated flavors in addition to the apricot, to the test solution, *i.e.*, a blend of flavors, the over-all flavor of the product would be improved. A series of test solutions comprised of corn syrup base formula 2, plus the vitamin B complex, all with the same amounts of apricot flavor but with differences in the other flavors both as to kind and amount, were made. One of these was considerably better tasting than the others to the ten individuals asked to participate in testing them. This particular blend of flavors is given below, and is the amount used for 500 cc. of test solution:

Imitation apricot	6 gtts.
Imitation peach	3 gtts.
Imitation maple	4 gtts.

It is not claimed that this blend of flavors is the best one possible to mix with the test solution. It is recognized that blending of flavors is an art within itself and it will be left to others to change the formula by one drop here and another drop there. It was believed that by the use of corn syrup, saccharin, citric acid, and the listed blend of flavors, the taste of the vitamin B complex in daily requirement per teaspoonful concentration had been successfully masked. Accordingly this product was submitted to a group of 41 individuals in competition with raspberry syrup, cinnamon syrup, and glycyrrhiza syrup. The last three syrups were mixed in equal parts with the vitamin B complex in aqueous solution and the specially developed product made as described above. Results of this test are tabulated below:

	TOTAL	PER CENT
Special product	83	67.4
Glycyrrhiza syrup	61	49.6
Raspberry syrup	55	44.7
Cinnamon syrup	47	38.2
Maximum possible total	123	

(*Continued on Page 128*)

. . . National Pharmacy Week Scheduled October 29 to November 4 . . .

THIS year National Pharmacy Week will be observed from October 29 to November 4. These dates were approved by the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION at its January meeting.

They supersede the previous tentative dates, October 15 to 21, which were cancelled because of conflicts with other important events scheduled at that time.

Previous to the meeting of the Council, the Public Relations Committee of the Association, under whose direction the event is conducted, had requested that a late fall date be selected for two principal reasons:

1. The success of the observance of National Pharmacy Week depends to a considerable extent upon the activities of the State Pharmaceutical Associations. It is believed by the Public Relations Committee that since all State association conventions will have been concluded by the latter part of October, an opportunity will have been afforded for a discussion of National Pharmacy Week plans at each State meeting.

2. Selection of a late October date will enable the pharmacy schools of the nation, together with the A. PH. A. student branches, to participate more actively in the Week. An earlier fall date would necessarily have conflicted with new term enrollment at the schools.

Identified with Public Health Promotion

Tentative plans of the A. PH. A. Public Relations Committee, according to Chairman Tom D. Rowe, indicate that the 1950 observance of National Pharmacy Week will feature the pharmacist as a community health builder using the educational program of the American Heart Association as an example of the pharmacist's helpful participation.

"The Public Relations Committee has recommended," Chairman Rowe stated, "that the general theme of the annual program be so worded and executed as to emphasize to the public the professional nature and status of pharmacy in the United States. National Pharmacy Week observance for 1947, 1948, and 1949 has clearly demonstrated that dedication of the Week to a major health program has focused attention of pharmacists and the public on the professional aspects of the drugstore to a greater extent than ever before."

Pharmacists have frequently expressed the thought that every week should be "Pharmacy Week." In line with this general thought the A. PH. A. has given leadership to a program of health promotion activities which calls for an ever-increasing participation on the part of pharmacists in supplying public health information. The high lights of this program for 1950 are:

SOCIAL HYGIENE DAY

February 1

An occasion to emphasize the importance of wholesome family life and ways of stamping out venereal disease.

FUND-RAISING CAMPAIGN OF THE AMERICAN HEART ASSOCIATION

The Month of February

With special emphasis on the week of February 12 (St. Valentine's Day). An opportunity to urge early diagnosis and treatment of heart diseases.

FUND-RAISING CAMPAIGN OF THE AMERICAN CANCER SOCIETY

The Month of April

This is not a Pharmacy Week promotion as in the past three years but full cooperation is asked to aid the American Cancer Society in its fund-raising efforts to aid research and education in cancer control.

NATIONAL PHARMACY WEEK

October 29 to November 4

The twenty-fourth observance of this annual opportunity to emphasize the professional activities of pharmacists. Complete information and reference to the customary awards for window displays and other features will be supplied in due course.

DIABETES DETECTION WEEK

Date to Be Determined (probably October)

Plans are now being discussed with the American Diabetes Association for 1950 activities in this field.

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Mid-Ses

APRIL 30-MAY

AMERICAN PHARMACEUTICAL ASSOCIATION conventions have become the annual rendezvous for leaders in pharmaceutical affairs. Practicing pharmacists, educators, pharmacy board members, State association officials, pharmacy law enforcement officers, drug industry executives and scientists are all to be found in attendance at the general sessions, the House of Delegates or the section meetings.

This year, as heretofore, every effort is being made to present a program that will appeal to all the diversified interests.

The Women's Auxiliary will be most capably cared for with preparations for its business sessions and entertainment.

The close proximity of Atlantic City to the eastern metropolitan centers added to the fact that delegates to the U. S. P. Convention in Washington the week following the A. PH. A. meetings can have their tickets routed via Atlantic City, assures a large attendance for this 97th meeting since the organization of the A. PH. A. in 1852.

Late April and early May seashore weather will make possible the combination of relaxation and pleasure with convention business and entertainment.

As usual, the convention will include consideration of national pharmaceutical affairs and current happenings with pharmaceutical import. During his term of office President Jenkins has visited

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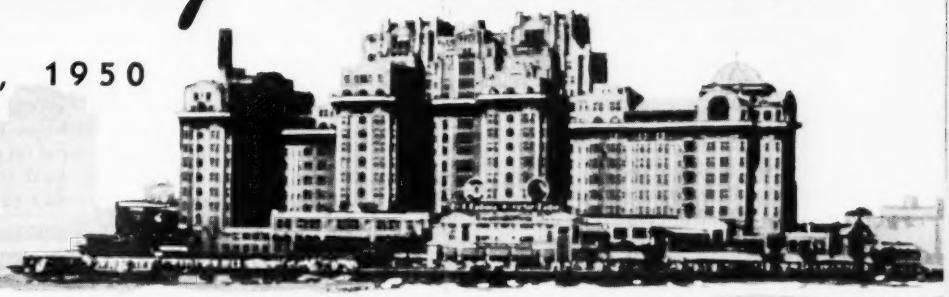


many A. Ph. A. Branches and State pharmaceutical associations and headed the A. Ph. A.'s mission to Japan. His address in the first General Session is bound to be a thought-provoking and constructive report as well as a mid-century view of things to come.

Reports of other officers and of committees will be made to the House of Delegates and will undoubtedly lead to constructive action on such problems as prescription renewal, development of prompt information service on new drugs, the pharmacy curriculum and the longer course of preparation for the profession, relations between medicine and pharmacy, the wise use and regulation of professional manpower for pharmacy, the changing character of our materia medica and the changing function of the pharmacist.

In the section programs there will be emphasis on the economics of prescription practice, methods of practical cooperation between pharmacists and the medical and dental professions, new techniques and new materials and apparatus for compounding, the pharmacist's place in handling pesticides and giving service to veterinarians as well as to physicians and dentists, and on educational methods and procedures for undergraduate and postgraduate training. Some members of the profession have searched the historical records for methods of the past to make them available as guideposts for the future. The results of this research will

be made available through papers presented to the historical section.

Preliminary programs for the sections are available at this time and will be supplemented by a detailed program of the convention in the next issue of THIS JOURNAL.

Preceding the A. PH. A. Convention and during non-conflicting periods while the annual meeting is in progress, there will be meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, the American Society of Hospital Pharmacists, the American College of Apothecaries, the American Institute of the History of Pharmacy, the National Conference of State Pharmaceutical Association Secretaries, and also a number of fraternal and special groups.

Among the special guests of the Convention will be the board of experts on International Standards for drugs which has been compiling these standards under the auspices, first, of the League of Nations and now the World Health Organization.

These experts include:

Professor H. Baggesgaard-Rasmussen, Chairman, Chemical Division, Danish Pharmacopoeia Commission, Copenhagen, Denmark.

Professor E. Fullerton Cook, M.Sc., Chairman, Committee of Revision of the Pharmacopoeia of the United States of America, Philadelphia, Pa., U.S.A.

I. R. Fahmy, Ph.D., Professor of Pharmacognosy, Fouad I University, Cairo, Egypt, Secretary, Egyptian Pharmacopoeia Commission.

H. Flück, Dr. Sc. Nat., Professor of Pharmacognosy, Eidgenossische Technische Hochschule, Zürich, Switzerland; Membre de la Commission fédérale de la Pharmacopée.

Dr. C. H. Hampshire, Secretary, British Pharmacopoeia Commission, General Medical Council Office, London, United Kingdom (Chairman).

Dr. R. Hazard, Professeur de Pharmacologie et de Matiere Medicale a la Faculte de Medecine de l'Universite de Paris, France; Membre de la Commission du Codex.

Professor D. van Os, Professor of Pharmaceutical Chemistry and Toxicology, University of Groningen, Chairman, Netherlands Pharmacopoeia Commission, Groningen, Netherlands.

Secretary Paul Blanc, Palace of Nations, Geneva, Switzerland.

HOTEL RESERVATIONS

Convention headquarters hotel will be the Traymore on Atlantic City's Boardwalk. In addition, the famous "convention city" offers a wide selection of other hotels.

All hotel reservations must be made through the A. PH. A. Housing Committee, Atlantic City Convention Bureau, 16 Central Pier, Atlantic City, New Jersey.

Every member of the ASSOCIATION will receive a hotel reservation form similar to the one reproduced on page 116 of this issue. Additional forms may be obtained by writing to the ASSOCIATION office.

SECTION MEETINGS

Scientific Section—

Chairman, RAYMOND P. AHLQUIST
Secretary, RAY S. KELLEY

Scheduled meetings:

Wednesday morning, May 3
Wednesday afternoon, May 3
Thursday afternoon, May 4
Friday morning, May 5

The scope of the contributions to the sessions of the Scientific Section is an indication of the broadening interest of scientists engaged in research in pharmacy and pharmaceutical chemistry. Both industrial and university research workers are represented among the contributors to the program.

Highlighting the second session of the Section will be the Iodine Research Award lecture by Dr. George M. Curtis, the recipient of the 1949 award. Due to the large number of papers, which at press time had reached 88, it will be necessary to hold simultaneous section meetings on Wednesday and the Symposium will probably be omitted.

Papers dealing with the synthesis of new organic compounds with possible valuable therapeutic effects constitute a considerable section of the program. In addition there are contributions reporting researches in radioactivity, bacteriology, pharmacology, pharmacognosy, physics, specialized tech-

niques and equipment for conducting delicate tests or meeting unusual testing conditions.

Preliminary plans for the program and a list of papers submitted by press time of this issue of the JOURNAL are as follows:

FIRST SESSION

Wednesday, May 3, 1950

9:30 a. m.

1. Business Meeting.
2. Presentation of Papers (2 Sections).

SECOND SESSION

Wednesday, May 3, 1950

1:30 p. m.

1. Report of the Award Committee of the Chilean Iodine Educational Bureau, Inc.
2. Address: George M. Curtis, M.D.
3. Presentation of Papers (2 Sections).

THIRD SESSION

Thursday, May 4, 1950

2:00 p. m.

Symposium: Subjects and Speakers to be announced at a later date.

FOURTH SESSION

Friday, May 5, 1950

9:00 a. m.

1. Presentation of Papers.
2. Final Business Meeting.

Scientific Papers

(These titles are not in order in which the papers will be presented.)

1. "The Measurement of Astringent Action"—A. W. Jowdy and E. A. Brecht.
2. "Heats of Solution of Polyethylene Glycols"—T. W. Schwarz, Donald C. Brodie and Sidney Riegelman.
3. "A Rapid Method for Extraction of Solanaceous Drugs" (A Preliminary Report)—S. J. Dean and Donald C. Brodie.
4. "Formulation Studies with 9-Aminoacridine"—Donald C. Brodie, Sidney Riegelman and S. J. Dean.
5. "Comparative Effects of Synthetic Analgesics on Spinal Fluid Pressure in Dogs"—Norman A. David and Elton L. McCawley.
6. "Effect of Anesthetic Agents on Peripheral Vascular Circulation"—Nilkanth M. Phatak.
7. "Polarographic Studies of Some Antihistamine Compounds and Some Official Iron Preparations"—L. E. Bingenheimer, Jr., and John E. Christian.
8. "A Study of the Absorption Characteristics of Iodine-131 Labeled Iodinated Casein in Some Mammals"—Donald J. Campbell, John E. Christian and Fred N. Andrews.
9. "A Study of the Effect of Astringents on the Permeability of Frog Skin Using Radioactive Tracer Techniques"—Russell E. Lux and John E. Christian.
10. "Tissue Distribution of S^{35} in the Rat Following Oral Administration of Labeled Sulfanilamide"—E. G. Fingl, J. E. Christian and L. D. Edwards.
11. "A Study of the Absorption of Sodium Ions in the White Rat Using Radioactive Tracer Techniques"—William L. Madison and John E. Christian.
12. "A Study of an *in Vivo* Test in Rats for Enteric Coatings Using Radioactive Tracer Technique"—C. F. Peterson, C. O. Lee and J. E. Christian.
13. "A Study of a Veratrum Viride Depressor Principle"—A. G. Zupko and L. D. Edwards.
14. "A Simple Respirator for Small Animals"—L. D. Edwards and T. S. Miya.
15. "A Series of Chalcones Derived from Khellinon"—R. M. Burgison and G. P. Hager.
16. "A Series of Styryl Derivatives of Khellin"—R. M. Burgison and G. P. Hager.
17. "Substituted Acetamidines Related to Chemotherapeutically Active Diamidines"—G. P. Hager and Wei-Chin Liu.
18. "Hypodermic Tablets: Manufacturing, Stability, and Solubility of"—J. A. Scigliano, W. A. Purdum and N. E. Foss.
19. "Iodine-Propylene Glycol Solutions"—Louis Gershenfeld and Bernard Witlin.
20. "A Capillary Polarimeter Tube"—Frank M. Goyan and Ivan J. Szekely.
21. "The Laxative Activity in Mice of the Various Parts of the Senna Plant"—I. W. Grote and Maribelle Woods.
22. "A Study of the Repeated Administration of Tinnevelly and Alexandria Senna to Mice"—Maribelle Woods and I. W. Grote.
23. "Comparative Methods of Drying and Assay of *Datura Stramonium* L."—Loyd E. Harris.
24. "Diarylalkanes: Hydrocarbons with Pleasant Aromas"—Walter H. Hartung and Henry Dale Smith.
25. "*In Vitro* and *in Vivo* Action of *Asarum Canadense*"—Rebecca C. Hellerman and Maribelle Woods.
26. "Adsorption and Liberation of Ephedrine from Ion Exchange Resins"—C. Lee Huyck.
27. "A Progress Report on the Effect of Amber Glass on the Stability of Tenth Normal Sodium Hydroxide I"—C. Lee Huyck.

Scientific Section (Continued)

28. "A Spectrophotometric Assay of Phenolphthalein"—Samuel Elkin and Arthur E. James.

29. "A Photofluorometric Assay for Yellow Phenolphthalein"—Samuel Elkin and Arthur E. James.

30. "A Study of Guar and Its Mucilages I. Pharmaceutical Preparations"—George E. Osborne and C. O. Lee.

31. "A Study of Guar and Its Mucilages II. The Effects of Certain Factors on the Viscosity of Guar and Other Mucilages"—George E. Osborne and C. O. Lee.

32. "A Comparative Study of North Dakota Grown Fennel Oils"—C. E. Miller and Melvin Rubin.

33. "Studies on 1080—I. Lures II. Coloring Agents"—A. B. Sloane, A. R. Latven and J. C. Munch.

34. "Bioassay of Cathartics I. Emodin Type"—A. R. Latven, A. B. Sloane and J. C. Munch.

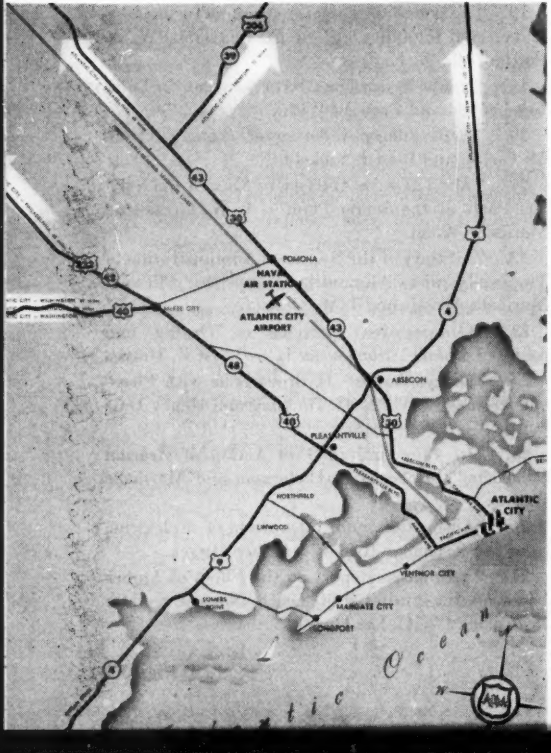
35. "Bioassay Technique for Allergens"—A. B. Sloane, A. R. Latven and J. C. Munch.

36. "Effects of the Alkaloid Cepharanthine on Bacteria"—Robertson Pratt, Jean Dufrenoy and Virginia Pickering.

Highways, railways, airways—

all lead to A. PH. A.

Atlantic City meeting.



37. "Antibacterial Effects of Ultra-Violet Radiation and Their Reversal"—Jean Dufrenoy, Robertson Pratt and Grace Gardner.

38. "Further Studies on the Alkaloids of *Argernone Hispida*"—John W. Schermerhorn and Taito O. Soine.

39. "Chemical Investigation of the Volatile Oil of *Pycnanthemum Pilosum* N."—E. H. Djao and A. E. Schwarting.

40. "The Synthesis of Some Substituted Glutarimides"—William S. Benica and Charles O. Wilson.

41. "Studies of the Seeds of *Strophanthus sarmentosus* and Related Species of Strophanthus"—Heber W. Youngken and Vartkes H. Simonian.

42. "The Action of Various Drugs on the Arterial Blood Flow and Myometrial Activity of the Pregnant Canine Uterus"—Raymond P. Ahlquist.

43. "A Study of the Iodination of Aniline"—Shirley F. Roeder and Haakon Bang.

44. "Chromatographic Analysis of Kennewick Washington Peppermint Oil"—Su Ming Wang and Haakon Bang.

45. "Radio-Frequency Drying of Tablet Granulations"—H. Bikin, Glenn L. Jenkins and H. George DeKay.

46. "Measurements of Gravity Filtration"—Ruth M. Kroeger and H. George DeKay.

47. "A Comparative Study of Pacific Northwest Peppermint Oils"—Edward Krupski and Louis Fischer.

48. "The Synthesis of Certain Disubstituted Piperidines"—Raphael O. Bachmann and Glenn L. Jenkins.

49. "The Synthesis of Certain Amines Related to Pilocarpine"—Einar Brochmann-Hanssen, John B. Data and Glenn L. Jenkins.

50. "The Synthesis of Diphenic Acid Derivatives"—Francois X. Demers, Jr., and Glenn L. Jenkins.

51. "Indole Derivatives Related to Lysergic Acid"—Frank C. Wheeler, Glenn L. Jenkins and Gustav E. Cwalina.

52. "A Study of Monoalkylcarbamates as Local Anesthetics"—D. A. Schlichting, G. E. Cwalina and G. L. Jenkins.

53. "Cultivation Studies of the Solanaceous Drugs. II. The Effect of Nutritional and Soil Reaction Fertilizers on the Production Yields and Total Alkaloidal Content of *Atropa Belladonna* and *Hyoscyamus Niger*"—Willis R. Brewer and L. David Hiner.

54. "Cultivation Studies of the Solanaceous Drugs. III. Alkaloidal Content of Mature and Immature Belladonna Leaves"—Willis R. Brewer and L. David Hiner.

55. "Cultivation Studies of the Solanaceous Drugs. IV. Effects of Time of Fertilization and Spacing of Plants in Solanaceous Culture"—Willis R. Brewer and L. David Hiner.

56. "Comparative Pharmacology of Two Digitoxins"—David I. Macht.

Section on Practical Pharmacy—

Chairman, ARTHUR P. WYSS
Secretary, ELMER M. PLEIN

Scheduled meetings:

Wednesday afternoon, May 3
Thursday afternoon, May 4
Friday afternoon, May 5

The Practical Pharmacy Section is featuring papers dealing with developments in dermatological products, their vehicles and ways of improving their elegance and methods of administration. Application of isotonicity and hydrogen ion control to prescription compounding; tablet manufacture; prescription tolerances; standards and incompatibility studies are some of the other subjects covered in the range of the papers.

This Section will meet jointly with the Sections on Education and Legislation and Pharmaceutical Economics for a symposium on the development of physician-pharmacist relationship as demonstrated by the New Jersey Pharmaceutical Association's joint professional relations program with the Medical Society of New Jersey.

Full program details were not completed at press time of the JOURNAL, but a tentative program for the symposium had been arranged and a number of papers had been submitted.

Symposium

Professional Services to Pharmacists, Physicians, and Allied Health Professions

Tom D. Rowe, Moderator
Louis Kazin—"The Pharmaceutical Extension Service at Rutgers University College of Pharmacy"
John Debus—"The Role of the State Association in Professional Services"
Rocco Ricciardi—"The New Jersey Formulary"
John L. Varriano, M.D.—"The Physicians' Part in Professional Services Programs"

Papers

1. "Hydrophilic Ointments"—H. L. Sigloch.
2. "Soap and Soap Substitutes"—H. L. Sigloch.
3. "What Type Service Does Your Customer Prefer?"—J. F. Badgett.
4. "The Preparation and Incompatibilities of Tragacanth Mucilage"—William J. Husa and James M. Plaxco, Jr.
5. "Pharmaceutical Opportunities in the Pesticide Field"—Bernard E. Conley.
6. "Pharmaceutical Aspects of Cosmetics"—Veronica L. Conley.
7. "Practical Hydrogen Ion and Isotonicity Control Methods in Prescription Pharmacy"—Henry J. Goeckel.
8. "Calamine Lotion U. S. P. XIII versus Calamine Lotion U. S. P. XIV"—H. D. Brown, T. M. Young and C. Lee Huyck.
9. "Time Tested Hand Lotions"—C. Lee Huyck.
10. "Sodium Carboxymethyl Cellulose as a Substitute for Acacia"—C. J. Cole and C. Lee Huyck.
11. "Experiences and Observations with a New Hydrocarbon Ointment Base"—E. R. Jones and B. Lewicki.
12. "Polyethylene Glycol Stearates and Cellulose Ethers as Suspending Agents"—Marybeth Hartman Jaggard and Louis Zopf.
13. "The Manufacture of Soluble Compressed Tablets"—Glen J. Sperandio and H. George DeKay.
14. "A Comparative Study of Tablet Granulations"—E. A. Kimes, William Ray and H. George DeKay.
15. "The Validity of Prescription Tolerances"—Samuel W. Goldstein.
16. "Standard Tolerances for Pharmaceutical Compounding VI. Further Studies on Liquid Preparations"—Samuel W. Goldstein.

Section on Pharmaceutical Economics—

Chairman, EDWARD IRELAND
Secretary, JOHN MACCARTNEY

Scheduled meetings:

Wednesday afternoon, May 3
Thursday afternoon, May 4
Friday afternoon, May 5

The Section on Pharmaceutical Economics will deal with the problem of prescription economics. The application of modern advertising and administrative techniques to the development of sound professional service will be one phase of the discussion on this important topic.

Meeting plans include a proposed joint meeting with the Sections on Practical Pharmacy and Education and Legislation for a symposium on the development of physician-pharmacist relationship. Tentative plan of the symposium is given in the program of the Section on Practical Pharmacy.

Pharmaceutical Economics—(Continued)

At this time, the following papers and plan of meetings are available:

First Session

Chairman's Address.
Secretary's Report.
Appointment of Committees.
Presentation of Papers:

1. "Psychology in Selling as Applied to the Prescription Department"—Irving Rubin.
2. "The Prescription Department Moves Forward"—George A. Bender.
3. "Prescription Department Personnel—Selection, Utilization, Compensation"—Harold W. Pratt.
4. "Development of Interprofessional Goodwill and Relations"—W. J. Henderson.

Second Session

Presentation of Papers:

1. "Pharmaceutical Advertising and the Retail Pharmacist"—Julian Farren.
2. "Records Used in Successful Prescription Pharmacy Operation"—Max N. Lemberger.
3. "Departmental Control in Prescription and Retail Drug Stores"—Charles N. Nielson.

Third Session

Report of Committees.
Report of Nominating Committee.
Unfinished Business.
Election and Installation of Officers.
New Business.
Adjournment.

Section on Education and Legislation—

Chairman, RALPH W. CLARK
Secretary, DAVID W. O'DAY

Scheduled meetings:

Wednesday afternoon, May 3
Thursday afternoon, May 4
Friday afternoon, May 5

The Section on Education and Legislation will have opportunity for the discussion of effective control of pharmaceutical practice and drug distribution by Boards of Pharmacy; public relations programs for pharmacists; State Drug laws and their effect upon pharmaceutical practice; teaching methods and the relation of the college training program to the practical requirements of conducting a pharmacy.

Meeting plans for this Section include a proposed joint meeting with the Sections on Practical Pharmacy and Pharmaceutical Economics for a symposium on the development of physician-pharmacist relationship. Tentative plan for the symposium is given in the program of the Section on Practical Pharmacy.

A partial list of the papers tentatively scheduled for presentation is available for publication at this time:

1. "Improving Compounding Practices"—Samuel W. Goldstein.
2. "Some Aims and Purposes of Seminars on College Teaching"—C. Lee Huyck.
3. "Effective Control of the Practices of Pharmacy in New Jersey Through the Exercise of Special Powers Possessed by the Board of Pharmacy"—W. E. Powers.
4. "This Thing Called Pharmacy, or Pharmacy vs. 'Pharmacycosis' "—Simon Benson.
5. "Suggested Content of a Pharmacist's Public Relations Brochure"—C. Lee Huyck.
6. "Some Interesting Points Concerning the Discretionary Powers of State Boards of Pharmacy and Other State Boards"—David W. O'Day, George R. Bell and John O. Rames.
7. "Iowa's New Drug and Cosmetic Act"—D. L. Bruner.
8. "The Undergraduate Pharmacy Research Club"—Alfred Halpern.
9. "Should We Lecture, Instruct, or Educate?"—Ann Langley Czerwinski.
10. "Are Schools of Pharmacy Making Changes in Their Educational Program Which Will Aid the Student to Bridge the Gap Effectively Between His Formal Professional Education and His Work After Graduation?"—E.E. Roscoe.
11. "Iowa's Institutional Advertising Program"—D. L. Bruner.

Section on Historical Pharmacy—

Chairman, ROLAND T. LAKEY
Secretary, GLENN SONNEDECKER

American Institute of the History of Pharmacy—

President, ARTHUR H. UHL
Secretary, GLENN SONNEDECKER

Scheduled joint meetings:

Wednesday afternoon, May 3
Thursday afternoon, May 4
Friday afternoon, May 5

Traymore Hotel lobby—
spacious headquarters,
gracious hospitality
for 97th annual meeting
at Atlantic City.

The Section on Historical Pharmacy, meeting jointly with the American Institute of the History of Pharmacy, will develop a historical prelude to the 1950 U. S. P. Convention.

Such other topics as the historical background for the development of American pharmaceutical education and the presentation of pharmaceutical side lights of English literature, journalism and compulsory health services will round out the program. Preliminary plans schedule the following program and papers:

First Joint Session

Chairman's Address.
Secretary's Report.
Reports of Committees.
Appointment of Committees.
Presentation of Papers:

Historical Prelude to the 1950 Pharmacopoeial Convention—

1. "Social, Economic and Legislative Influences Reflected in the Character of the National Formulary"—Roland T. Lakey.
2. "The Rescue of the United States Pharmacopoeia by Organized American Pharmacy in the 1870's"—George Urdang.
3. "Quaker Influence on Early Editions of the United States Pharmacopoeia"—John E. Kramer.
4. "California's Contributions to the United States Pharmacopoeia"—Edward S. Brady.

Second Joint Session

Presentation of Papers:

5. "A Commentary on a Half Century of Pharmaceutical Journalism"—George A. Bender.
6. "Drugs and Druggists Mentioned by Shakespeare"—W. D. Wilcox.
7. "Shakespeare's Allusions to Blood Coagulation and Blood-Coagulating Drugs'—David I. Macht.
8. "The Thomsonian Movement and American Pharmacy"—Alex Berman.
9. "British National Health Service: One Recent Step in a Historical Trend"—Arthur H. Einbeck.
10. "A Brief History of California Pharmacy" (illustrated)—George B. Griffenhagen.
11. "The Professional Service Pharmacist"—Arthur F. Peterson.

Unfinished Business.
Reports of Committees.
Election and Installation of Section Officers.

Third Joint Session

Presentation of Papers:

Symposium Commemorating the 50th Anniversary of the American Association of Colleges of Pharmacy—

1. "Science in American Pharmaceutical Education of the 19th Century"—Glenn Sonnedecker.
2. "A History of Rho Chi Society"—Roy A. Bowers.
3. "Tendencies in Early Pharmaceutical Education as Evidenced in the New York College of Pharmacy"—Curt P. Wimmer.
4. "The Part of M.D.'s in American Pharmaceutical Education"—George Urdang.

Report of the President.
Report of the Treasurer.
Report of the Director.
Miscellaneous.
Adjournment.

Lotion VEHICLES

By LESLIE M. OHMART and MITCHELL J. STOKLOSA*

One of the most useful types of preparations available to the dermatologist is the lotion. Its usefulness, however, is limited by the fact that there is no official lotion intended to be used solely as a vehicle. Consequently, when the dermatologist wishes to prescribe an extemporaneous lotion, he must write the complete formula, or he must utilize one of the official lotions as the vehicle, thus introducing medicinal agents which may not be desired.

The dermatologist has no difficulty in prescribing ointments, since the official compendia furnish him with a variety of ointment bases that may be prescribed by writing their official titles. It would seem logical, therefore, to include in the official compendia one or more lotion vehicles having a wide range of compatibility with the substances ordinarily prescribed in this manner, thus increasing the usefulness of these books to the prescribing physician.

In order to determine if preparations of this type are practicable, the following investigation was undertaken.

Six lotion vehicles were prepared according to the formulas and directions which follow.

Lotion Vehicle I

Stearic acid	25.0 Gm.
Triethanolamine	4.0 Gm.
Lanolin	40.0 Gm.
Glycerin	30.0 cc.
Water, a sufficient quantity to make	1000.0 cc.

Melt the stearic acid and lanolin, and heat the mixture to 80° C. Mix the triethanolamine, glycerin and 850 cc. of water, and heat to 80° C. Add the aqueous phase to the oil phase with constant stirring. Continue to stir until the mixture has cooled to about 40° C., add enough water to make the product measure 1000 cc., and mix thoroughly.

Lotion Vehicle II

Stearic acid	40.0 Gm.
Triethanolamine	10.0 Gm.
Sodium lauryl sulfate	5.0 Gm.
Glycerin	50.0 cc.
Water, a sufficient quantity to make	1000.0 cc.

Melt the stearic acid and heat it to 80° C. Dissolve the sodium lauryl sulfate in a mixture of triethanolamine, glycerin and 850 cc. of water, and heat the mixture to 80° C. Add the aqueous phase to the oil phase with constant stirring. Continue to stir until the mixture has cooled to about 40° C., add enough water to make the product measure 1000 cc., and mix thoroughly.

Lotion Vehicle III

Cetyl alcohol	15.0 Gm.
White wax	1.0 Gm.
Glycerin	50.0 cc.
Sodium lauryl sulfate	5.0 Gm.
Water, a sufficient quantity to make	1000.0 cc.

* Department of Pharmacy, Massachusetts College of Pharmacy, Boston, Mass.

Presented before the Section on Practical Pharmacy, American Pharmaceutical Association, Jacksonville, Fla., April, 1949.

Melt the cetyl alcohol and white wax, and heat the melted mixture to 80° C. Dissolve the sodium lauryl sulfate in a mixture of glycerin and 300 cc. of water, and heat to 80° C. Add the aqueous phase to the oil phase *very slowly*, stirring constantly until the emulsion forms. Continue to stir until the mixture has cooled to about 40° C., add enough water to make the product measure 1000 cc., and mix thoroughly.

Lotion Vehicle IV

Bentonite magma	500.0 cc.
Alcohol	50.0 cc.
Glycerin	100.0 cc.
Water, a sufficient quantity to make	1000.0 cc.

Dilute the bentonite magma with a mixture of alcohol, glycerin and 300 cc. of water. Add enough water to make the product measure 1000 cc., and mix thoroughly.

Lotion Vehicle V

Diglycol stearate	15.0 Gm.
White wax	5.0 Gm.
Cetyl alcohol	2.5 Gm.
Wool fat	5.0 Gm.
Olive oil	5.0 cc.
Methylparaben	0.25 Gm.
Propylparaben	0.15 Gm.
Glycerin	20.0 cc.
Water, a sufficient quantity to make	1000.0 cc.

Melt the diglycol stearate, white wax, cetyl alcohol and wool fat, add the olive oil, methylparaben and propylparaben, and heat the mixture to 80° C. Mix the glycerin and 300 cc. of water, and heat the mixture to 80° C. Add the aqueous phase to the oil phase *very slowly*, stirring constantly until the emulsion forms. Continue to stir until the mixture has cooled to about 40° C., add enough water to make the product measure 1000 cc., and mix thoroughly.

Lotion Vehicle VI

Glyceryl monostearate S-E	12.5 Gm.
Cetyl alcohol	2.5 Gm.
Stearic acid	7.5 Gm.
Theobroma oil	5.0 Gm.
Liquid petrolatum	7.5 cc.
Methylparaben	0.25 Gm.
Propylparaben	0.15 Gm.
Triethanolamine	2.5 Gm.
Glycerin	25.0 cc.
Water, a sufficient quantity to make	1000.0 cc.

Melt the glyceryl monostearate, cetyl alcohol, stearic acid and theobroma oil, add the liquid petrolatum, methylparaben and propylparaben, and heat the mixture to 80° C. Mix the triethanolamine, glycerin and 900 cc. of water, and heat the mixture to 80° C. Add the aqueous phase to the oil phase with constant stirring. Continue to stir until the mixture has cooled to about 40° C., add enough water to make the product measure 1000 cc., and mix thoroughly.

*p*H Values Determined

The *p*H values of the above preparations were determined and the stability observed. The six lotion vehicles were stable for a period of one month. The *p*H values, shown in Table I, varied from 6.5 to 8.5.

Table I

Lotion Vehicle	*p*H
I	7.9
II	7.7
III	6.5
IV	8.5
V	6.8
VI	8.1

In an attempt to evaluate the compatibility of the lotion vehicles with medicinal substances that are commonly prescribed in dermatologic prescriptions, six series of lotions were prepared, each series containing the medications shown in Table II. The results of these compatibility tests are shown in Table III.

Table II

Medication	Strength
Calamine	10%
Zinc oxide	10%
Precipitated sulfur	5%
Precipitated sulfur	5%
Salicylic acid	2%
Cade oil	5%
Ammoniated mercury	2%
Phenol	1%
Menthol	0.25%
Whitfield's combination	½ strength
Coal tar solution	5%
Ichthammol	10%
Boric acid	10%
Starch	10%
Benzocaine	5%
Talc	10%
Resorcinol	2%

Table III

Medication	Lotion Vehicles I	II	III	IV	V	VI
Calamine	B	B	A	B	B	B
Zinc oxide	B	B	A	B	B	B
Precipitated sulfur	C	B	A	C	C	B
Precipitated sulfur / Salicylic acid	C	C	A	C	C	C
Cade oil	C	A	B	B	C	B
Ammoniated mercury	B	B	A	B	B	A
Phenol	B	B	A	A	B	A
Menthol	B	B	A	C	B	A
Whitfield's combination	C	C	A	C	C	C
Coal tar solution	B	A	A	B	B	A
Ichthammol	C	B	A	B	B	B
Boric acid	C	C	A	C	C	C
Starch	B	B	A	B	B	A
Benzocaine	B	B	A	C	B	A
Talc	B	B	A	B	B	B
Resorcinol	A	B	A	C	B	B

A—Satisfactory; shows no apparent separation into layers or sedimentation after standing for 14 days.
B—Satisfactory; separates into layers and/or shows sedimentation, but shakes in well.
C—Chemically or physically incompatible.

It will be noted that lotion vehicles I, II, IV, V and VI are incompatible with salicylic acid, benzoic acid and boric acid.

Lotion vehicle III offers the widest range of compatibility. It is fully compatible with all of the medicinal substances that were used in the investigation except cade oil. The lotion made with cade oil shows a slight separation into layers after standing for 14 days; but when shaken, the lotion is satisfactory.

The presence of lotion vehicles in the official compendia would free the dermatologist, in many instances, of the necessity for writing excessively long formulas and would encourage the prescribing of official preparations.

It is recommended that this matter be subjected to further study and investigation with the objective of recommendation of official adoption of lotion vehicle formulas, if it seems desirable to do so.

Conclusions

The results of this investigation seem to indicate that it is practicable for the pharmacist to prepare and store certain lotion vehicles to be used in extemporaneous compounding. The compatibility studies indicate, further, that these preparations would be useful to the dermatologist as vehicles for many of the medicinal substances commonly employed by him.

Summary

1. Six lotion vehicles were prepared.

2. Compatibility tests indicate that the preparations are satisfactory vehicles for many of the medicinal substances that are used in dermatologic lotions.

3. It is recommended that further study and investigation of lotion vehicles be undertaken to establish the feasibility of official adoption.

STUDY MADE ON SAFETY OF COLD WAVES

Judicious use of ammonium thioglycolate as a hair-waving preparation should prove a relatively innocuous procedure, according to a study made by Dr. A. J. Lehman, Washington, D. C., chief of the Division of Pharmacology, U. S. Food and Drug Administration. The study appears as a report to the American Medical Association's Committee on Cosmetics.

Thioglycolic acid in the form of various salts is the active ingredient of 75 per cent or more of the cold-waving lotions now in current use, Dr. Lehman points out. Allergic responses to the thioglycolates do not appear to have occurred frequently.

The systemic effects which may result following exposure to other chemicals used in the "cold" permanent waving of hair are also discussed by Dr. Lehman. These additional chemicals include the alkaline solutions of mercaptans and alkaline solutions of ammonium hydrogen sulfide. Experimental evidence indicates that both classes of the latter compounds produced local and systemic toxic effects when administered percutaneously to laboratory animals.—*J. Am. Med. Assoc.*, **141**:842 (1949).

THE USE OF SOLUBILIZED OILS IN THE PREPARATION OF CERTAIN GALENICALS

By ANTHONY J. MONTE-BOVI*

"Soluble oils" or solubilized oils are generally understood to be essential or flavoring oils compounded with an emulsifier or solvent which allows the mixture to give an apparently clear solution in water. These clear "solutions," in the ordinary sense, may or may not be true solutions; for example, they may be transparent emulsions of the oil-in-water type and therefore capable of being diluted with water to give sparkling clear dispersions.[1] Such solubilized oils are being widely used in industry wherever a nonalcoholic or low-alcoholic highly flavored or perfumed preparation is desired.

With this thought in mind a series of experiments was conducted with a view of determining the possible use of such solubilized oils in the preparation of those galenicals which present manufacturing difficulties involving long or difficult filtrations.

Since the Aromatic Elixir of the U. S. P. has always given trouble (insofar as its preparation involves such a time-consuming filtration),[2, 3] it was decided to prepare this simple elixir with solubilized oils.

To a lesser extent, the preparation of sparkling clear aromatic waters may sometimes involve time-consuming filtrations and it was interesting to determine if some official aromatic water could be prepared by the use of a solubilized essential oil.

In both cases, the goal was to eliminate filtration completely.

Experimental Procedure

The experimental procedure of this study was directed toward determining: (1) The proper solubilizing agent to use, (2) how much of the solubilizing agent to use, and (3) the proper procedure to follow in preparing the galenicals selected.

It quickly became apparent that the method used in preparing such solubilized oil products is of the utmost importance. The solubilizing agent, method of mixing, order of mixing, temperature, and nature of the other ingredients involved in the formulation are all fairly specific to the oils required by the formula. In a forthcoming paper (now in preparation) the critical factors found in the preparation of such galenicals will be presented and discussed. In the meantime, the formula and procedure which gave the best results are submitted as follows:

1. Aromatic Elixir

Orange oil, U. S. P.	2.40 cc.
Lemon oil, U. S. P.	0.60 cc.
Coriander oil, U. S. P.	0.24 cc.
Anise oil, U. S. P.	0.06 cc.
Polyoxyethylene sorbitan monolaurate*	19.00 cc.
Syrup, U. S. P.	375.00 cc.
Alcohol, U. S. P.	
Distilled water, of each, a sufficient quantity, to make	1000.00 cc.

* Tween 20, available from the Atlas Powder Co., Wilmington 99, Del.

With the exception of the solubilizing agent, this formula is essentially the same as that of the official elixir.

Procedure: Thoroughly mix the oils with the polyoxyethylene sorbitan monolaurate and slowly add, with constant stirring, enough alcohol to make 250 cc. Pour this alcoholic solution into 350 cc. of the water, slowly and with gentle but constant stirring. Next add the syrup in small portions, slowly mixing after each addition.

* St. John's University, College of Pharmacy, Brooklyn, N. Y.

Presented before the Section on Practical Pharmacy, American Pharmaceutical Association, Jacksonville, Fla., April, 1949.

Allow to stand for a few minutes and then add enough water to make 1000 cc. No filtration is necessary since a clear solution results which compares favorably in odor, taste, and clarity with the official elixir.

2. Peppermint Water

Oil of peppermint, U. S. P.	2.00 cc.
Polyoxyethylene sorbitan monolaurate*	11.50 cc.
Distilled water, sufficient to make	1000.00 cc.

* Tween 20, available from the Atlas Powder Co., Wilmington 99, Del.

PROCEDURE: Dissolve the peppermint oil in the polyoxyethylene sorbitan monolaurate and slowly add this solution to about 800 cc. of the water, mixing slowly and continuously. Allow to stand for a few minutes and then add water to make 1000 cc. No filtration is necessary since a clear solution results which compares favorably in clarity with the official peppermint water. The odor and taste of the water made with the solubilized oil appears to be more "minty" than the official water, suggesting the use of less solubilized oil in such a preparation.

Both the elixir and the peppermint water were kept at room temperature (ranging from 15 to 34°) and observed over a period of six months. No change in the clarity or taste was apparent.

Experiments now are underway to determine

(1) the possibility of preparing other elixirs and waters by this method;
(2) the possibility of preparing other types of galenicals, by this method;
(3) the proper amount of flavoring oil to use in getting a taste comparable to the official product;
(4) the incompatibilities of the galenicals prepared with solubilized oils;
(5) the toxicity of galenicals prepared with such solubilized oils.

Conclusion

By the use of solubilized oils it was possible to prepare a sparkling clear (1) aromatic elixir and (2) peppermint water without resorting to any type of filtration.

REFERENCES

1. "Emulsions and Emulsifying Agents," Atlas Powder Co., Wilmington 99, Del. (1948).
2. Sperandio, Glen J., and Lee, C. O., "Aromatic Elixir," THIS JOURNAL, **9**: 24 (1948).
3. Ewing, Clare O., Krone, O. R., and White, C. W., "Aromatic Elixir," *ibid.*, **10**: 102 (1949).

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INFORMATION SERVICE

Members of the American Pharmaceutical Association are invited to submit their professional problems to the Journal, 2215 Constitution Ave., N. W., Washington 7, D. C., giving all pertinent details. Advisory service is provided by the A. Ph. A. library and technical staff and the Journal panel of technical consultants.

HISTAMINE IN TREATMENT OF HEADACHE

We have a physician inquiring as to the use of histamine in treatment of a chronic type headache. Do you have any information on this subject?—P. O., New York

Horton [*J. Am. Med. Assoc.*, **116**, 377 (1941)] reported 72 cases of a peculiar type of headache (histaminic cephalgia) which was promptly relieved by desensitization with histamine. We suggest you refer your physician to this reference.

HEAT AFFECTS OINTMENT

Liquid separation of the following ointment occurs during hot summer weather:

Salicylic acid	
Ppt. sulfur	
Sol. coal tar	*aa 5%*
Carbowax 1500	*q. s., ad*

I would appreciate your comments.—M. B., New York

This question has been investigated by our laboratory and we believe the ointment probably separates because of melting of the Carbowax at high temperature. Under these conditions, the liquid Carbowax would separate and rise to the top of the mixture.

In the past it has been the practice of the U. S. P. to allow incorporation of small quantities of spermaceti into the ointments made from fatty bases so as to prevent the ointments from melting during summer heat. We would advise a similar practice with the above ointment, but in this case it would be advisable to add a small amount, about 5%, of Carbowax-4000 to the mixture in order to prevent its melting at high temperatures. This may be objectionable in cooler weather, however, since it might make the ointment too stiff for easy application. Therefore, it seems it would be better to prepare smaller quantities of the ointment and use the Carbowax-4000 only for those lots that will be used during the summer.

PHARMACISTS AT SEA

Can you tell me if ocean-going passenger ships employ registered pharmacists?—Z. L., Ohio

We have been advised by the American President Lines and the United States Lines that registered pharmacists are not employed on their vessels.

The Cunard White Star Limited line employs pharmacists; however, as a British company, all engagements for their sea-going staff must be made directly through their home office in England.

OF QUESTIONABLE VALUE

I should appreciate information regarding a proprietary medicine made from Cineraria maritima *L. It is used empirically in the treatment of cataracts of the eyes.—A. D., New York*

We have searched the references readily available to us and fail to find such a product now being manufactured. However, in the 20th Edition of the U. S. Dispensatory (1918)

the following statement appears in the monograph of *Cineraria maritima* L. in connection with its stated use as an absorbent of cataracts:

> "We do not know, however, of any sufficient scientific justification for a belief in this improbable property."

PHENYLMERCURIC NITRATE

Can you assist me in purchasing small quantities of medicinal grade phenylmercuric nitrate?—E. J., Massachusetts

We believe that the Hamilton Laboratories, Inc., Asheville, N. C., can supply you with small quantities of the proper grade of phenylmercuric nitrate. Their product is labeled "Medicinal Grade Merphenyl" and "For Manufacturing Use."

SOURCE OF SUPPLY

Kindly forward information concerning a source of supply for micro-crystalline sulfadiazine, micro-crystalline sulfamerazine and unsterile sodium sulfadiazine powder.—S. K., Colorado

On checking our catalogues, we note that all three of these chemicals are available from Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey.

STILBAMIDINE

Can you supply information as to the availability of stilbamidine ampuls?—P. M., California

The New Drug Division of the U. S. Food and Drug Administration has informed us that a new drug application has not been filed for stilbamidine. Therefore, it is our belief that stilbamidine is available for investigational use only from Merck and Co., Inc., Rahway, N. J.

A procedure for the preparation of stilbamidine injection (25 mg./cc.) has been published in *The Bulletin of the American Society of Hospital Pharmacists* (January–February issue, 1947, p. 28).

STREPTOKINASE

Can you advise me as to the source and nature of the substance called streptokinase being used in the treatment of tuberculosis meningitis?—A. M., France

Streptokinase is a bacterial enzyme, produced by most strains of hemolytic streptococci, which has the property of bringing about the dissolution of human fibrin clots.

According to Cathie (*The Lancet*, March 12, 1949) it has been shown that in tuberculosis meningitis the tubercle bacilli are surrounded by an exudate consisting mainly of fibrin and that this fibrin exudate is resistant to streptomycin. Therefore, the possibilities of bacterial streptokinase as an adjuvant to streptomycin in the treatment of tuberculosis meningitis are being investigated.

It is our understanding that streptokinase is available in the United States for investigational use only and that it is being supplied in limited quantities by Lederle Laboratories Division, American Cyanamid Co., New York 20, N. Y. It is also our understanding that, at present, the complete supply of streptokinase is allocated to the New York University Hospital, New York City.

TABLET MAKING

Can you send me the name of an up-to-date textbook on the subject of the manufacture of tablets?—J. P., Mexico

The latest textbook on the subject of tablet making which has been called to our attention is the recently published book entitled "Tablet Making" by Arthur Little and K. A. Mitchell. It is published by the Northern Publishing Co., Ltd., Liverpool 1, England. The price is 15 shillings.

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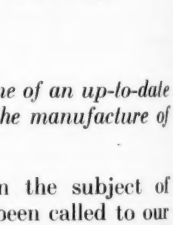


A. Ph. A. Branches

LOCAL BRANCHES

PARENTERAL medications, important in the field of therapy, can present difficult technical problems in manufacture. At the January 12 meeting of the **Philadelphia Branch,** John H. Brewer, director of biological research for Hynson, Westcott and Dunning, Inc., described the most recent developments in technique and equipment for the "Preparation of Sterile Parenteral Products."

Herbert M. Flack, president of the American Society of Hospital Pharmacists, was the dinner speaker. His talk continued the series, begun in 1949, on the organization and function of the Division of Hospital Pharmacy of the ASSOCIATION.

"Medical Health Plans" was the subject of Dr. James F. Norton's talk before the **Northern New Jersey Branch** January 10. Dr. Norton is the president of the Medical Society of New Jersey.

Practical pharmacy was the keynote of the December 21 meeting of the **Northern California Branch.** Dr. Ivan J. Szekely, of the University of California College of Pharmacy, talked on the practical advantages gained through use of such "surface active" agents as: Aerosol, Arlacel, Span, Tween, Duponal, Zephrian, etc. He demonstrated a few formulas to show how the use of these agents facilitates compounding, and makes chemotherapy more effective and prescriptions more attractive.

St. John's University College of Pharmacy was host to the January 9 meeting of the **New York Branch.** Following a brief business session the evening was devoted to information and discussion of cardiac therapy. A sound film, "Management of the Failing Heart," issued by the Department of Pharmacology of Cornell Medical School was shown, and Dr. Luigi Minetto presented a paper on the "Recent Advances in Cardiac Therapy." Dr. Minetto, assistant attending cardiologist of Long Island College Hospital and a member of the Department of Pharmacology of Long Island College of Medicine, described the recent therapeutic measures used in the treatment of cardiovascular diseases. Therapy included such medicaments as cortisone, mercurial diuretics, nitrites, papaverine HCl, cytochrome C, heparin, dicumarol, thiocyanates, as well as fever therapy and surgery.

STUDENT BRANCHES

AN outstanding attendance record and a successful membership drive for the 1949 fall season was reported at the January 15 meeting of the **University of Arizona Branch.** Mr. G. Benner Kelly gave a short talk on the Red Cross Blood Bank program and arrangements were made for the pharmacy students to donate when the Red Cross Mobile Unit visited the University. Officers for 1950 were elected during the meeting: Jack Suite, president; Bob Thomas, vice-president; Lorraine Proctor, secretary; Jerry Davidson, treasurer; George DeSmet, sergeant at arms.

"What should the civilian population do in an atomic bomb attack?" This was just one topic covered in a talk on the "Medicinal Aspects of the Atomic Bomb" given by Dr. Clarence B. Palmer of Covington, Georgia, to the **University of Georgia Student Branch** January 17. Many local physicians, pharmacists, and other interested persons attended this meeting. Dr. Palmer served six years in the Army Medical Corps and recently completed refresher courses in the atomic aspects of medicine.

At their January 11 meeting, the **Rutgers College of Pharmacy Branch** heard Jeff Friedman, a junior student, discuss cortisone. Following a movie on blood donor service, Wallace J. Addison and Dr. Eugene Katzer, director and medical director respectively, of the Red Cross Blood Donor Service of Essex County, told more about the program and answered questions in the discussion period.

Mineral deficiency of soils affects not only the crops, but livestock as well and ultimately blights the lives of many humans. "On the Other Side of the Fence," a color film about the soil and these effects, was shown at the January meeting of the **Drake University Branch.**

An outstanding meeting closed 1949 for the **University of Kentucky Branch.** It was held in the WKLO radio station auditorium to accommodate area pharmacists invited to hear Dr. Milstead of the Cincinnati Division of the Federal Food and Drug Administration.

At the first 1950 meeting a special film, "Sell as the Customers Like It," was shown. Expecting to maintain 100% membership through 1950, the Branch is off to a good start with applications completed for the entire sophomore class.

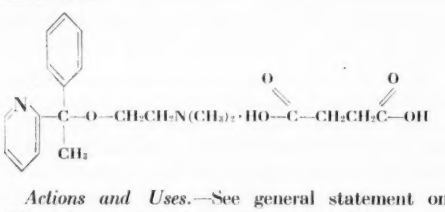
During an intermission of the Christmas ball sponsored by the newly organized **University of New Mexico Branch,** Dean Roy A. Bowers presented the Branch charter to its president, Ralph Gutierrez.

NNR

PRODUCTS RECENTLY ACCEPTED BY THE A. M. A. COUNCIL ON PHARMACY AND CHEMISTRY

Council descriptions of new drug products only are published regularly in THIS JOURNAL *as they are accepted. Rules upon which the Council bases its action appeared in the July (7:320) 1946 issue, and may be secured in pamphlet form upon request to the Secretary, Council on Pharmacy and Chemistry, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.*

DOXYLAMINE SUCCINATE.—Decapryn Succinate- Merrell.—2-[α-(2-Dimethylaminoethoxy)-α-methylbenzyl] pyridine succinate.—$C_{17}H_{22}N_2O.C_4H_6O_4$.—M. W. 388.45.—The structural formula for doxylamine succinate may be represented as follows:



Actions and Uses.—See general statement on Histamine-Antagonizing Agents. Doxylamine succinate is highly effective in the recommended dose. However, it has a very high index of sedation and in spite of its therapeutic efficacy, its sedative action sometimes precludes its use, particularly where large doses of antihistamines are required.

Dosage.—The average adult dose is 25 mg., but the initial dose should be 12.5 mg. and this may be increased until the desired response is obtained or side effects become pronounced.

Tests and Standards.—

Physical Properties: Doxylamine succinate occurs as a cream to white powder having a characteristic odor. It melts between 100 and 104° C. It is very soluble in water, freely soluble in alcohol and chloroform and slightly soluble in benzene. The free base is obtained as an oil upon the addition of sodium hydroxide T.S. to a 5% solution of doxylamine succinate. A 1% aqueous solution of doxylamine succinate has a *p*H between 4.9 and 5.1.

[For additional tests and standards see *J. Am. Med. Assoc.*, **142:** 33 (1950).]

The Wm. S. Merrell Co., Cincinnati 15, Ohio

Syrup Decapryn Succinate: 473-cc. bottles. A syrup containing 1.25 mg. of doxylamine succinate in each cc.

Tablets Decapryn Succinate: 12.5 mg. and 25 mg.

U. S. trademark 410,624.

SPECIAL GELATIN SOLUTION, INTRAVENOUS.—Special Gelatin Solution Intravenous-Knox.—A 6% sterile, pyrogen-free, nonantigenic solution of gelatin in physiological sodium chloride for use as an infusion colloid. The gelatin is specially prepared from refined beef bone collagen.

Actions and Uses.—Special gelatin solution, intravenous, is specially prepared for injection as a readily available infusion colloid to support blood volume in the management of various types of shock. It is thus used as an osmotically effective substitute for plasma and whole blood when these substances are not otherwise indicated or are not available to meet emergency demands for restoring circulatory volume. In acute or recurrent hemorrhage or shock associated with loss of blood, whole blood is preferable to any other substitute.

Special gelatin solution, intravenous, is largely excreted by the kidney and should therefore not be employed when there is renal impairment; it must be used with care in the presence of cardiac impairment to avoid the undue burden to the circulation of excessive fluid volume. Until further information is available it should not be used in the crush syndrome or in extensive third degree burns because these are associated with possible renal damage.

Since infused gelatin produces pseudoagglutination of the red blood cells that may interfere with typing or cross matching when blood transfusion is to be given later, these tests should be performed before gelatine is used.

Dosage.—Special gelatin solution, intravenous, should be warmed to about 50° C. before injection because the solution gels at lower room and refrigerator temperatures. It is completely fluid at body temperatures and must be kept warm for prolonged administration by the drip method. It can be given safely at rates up to 30 cc. per minute. Usually 500 cc. is adequate for a single infusion. About 50% of the gelatin remains in the circulation after 24 hours, so that a single infusion usually gives osmotic protection for 24 to 48 hours.

Tests and Standards.—

Physical Properties: The gelatin solution is odorless, clear, amber and slightly viscous at temperatures above 29° C., but gels at ordinary room temperature. It has a saline taste due to the added sodium chloride (0.9%). The *p*H of the solution is between 6.95 and 7.40.

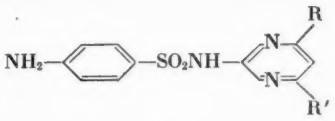
[For additional tests and standards see *J. Am. Med. Assoc.*, **142:** 33 (1950).]

Knox Gelatin Protein Products, Inc., Camden, N. J.

Special Gelatin Solution, Intravenous 6%: 500-cc. bottles. A solution containing 60 mg. of gelatine in each cc.

SULFADIAZINE - SULFAMERAZINE - SULFAMETHAZINE MIXTURE.—Liquoid Metha-Merdiazine - McNeil.—Tripazine - Eaton.—Trisulfazine-Central.—A sulfonamide mixture containing equal weights of sulfadiazine U. S. P., sulfamerazine U. S. P. and sulfamethazine, to which there may or may not be added a suitable compatible agent to increase the *p*H of the urine. The

structural formula of the sulfonamides may be represented as follows:



Actions and Uses.—The combination of equal parts of sulfamerazine, sulfadiazine and sulfamethazine has been shown, when given in the suggested dosage, to provide approximately the same therapeutic activity that is obtained when each of the drugs is administered singly in the recommended doses. Comparable total sulfonamide blood levels are thus produced with the recommended doses of the mixture as for each of the drugs given at its suggested dosage. These mixtures have been shown to provide the same effect with one-third to one-half the amounts of each of its components as can be achieved by the amount required of any one of its constituents administered singly. Such a mixture of equal parts thus reduces the incidence of crystalluria to the extent that the amount required of the individual components is diminished.

Triple mixtures of the sulfonamide drugs have been shown to reduce the incidence of renal crystalluria to a greater extent than the dual mixtures of sulfonamides. As in the case of the sulfonamide drugs administered singly or as dual mixtures, further addition or simultaneous administration of a suitable alkalizing agent to the triple mixture tends further to prevent the formation of sulfonamide crystals in the urine.

Specific indications for the use of sulfonamide drugs are indicated in the individual monographs for sulfadiazine, sulfamerazine and sulfamethazine. Until further evidence becomes available, claims that mixtures of the sulfonamide drugs reduce the incidence of untoward effects other than renal crystalluria are not permissible.

Dosage.—In the treatment of acute pneumococcic, streptococcic and meningococcic infections the maintenance of a concentration of total sulfonamide drugs in the blood of 10 to 15 mg. per 100 cc. will usually be sufficient. Blood serum concentrations of this magnitude may be attained within four hours by the oral administration of 3 or 4 Gm. of the triple sulfonamide mixture as an initial dose, followed by 1.0 Gm. every six hours. This dosage should be continued for 72 hours after the temperature and pulse and respiration rates return to normal. In severe infections, it may be desirable to increase the dosage. However, concentrations of the combined drugs in the blood in excess of 12 mg. per 100 cc. are rarely needed.

For children an initial dose of 65 to 100 mg. total sulfonamide drugs per Kg. of body weight followed by one-quarter the initial dose every six hours. This dosage should be adjusted to meet the requirements of the particular case.

Only oral preparations are suited for the administration of sulfonamide mixtures, and these are available in either tablet or liquid forms to provide a unit dose of 0.5 Gm. total sulfonamide content.

Tests and Standards.—

[For tests and standards see *J. Am. Med. Assoc.*, **141**: 1234 (1949).]

The Central Pharmacal Company, Seymour, Ind.

Palatabs Trisulfazine: 0.25 Gm. Each tablet contains 0.083 Gm. each of sulfadiazine, sulfamerazine and sulfamethazine.

Suspension Trisulfazine with Sodium Lactate: 60-cc., 473-cc. and 3.78-liter bottles. A stable suspension containing 33 mg. each of sulfadiazine, sulfamerazine and sulfamethazine and 0.1 Gm. of sodium lactate in each cc. Preserved with methylparaben and propylparaben.

Tablets Trisulfazine: 0.5 Gm. Each tablet contains 0.167 Gm. each of sulfadiazine, sulfamerazine and sulfamethazine.

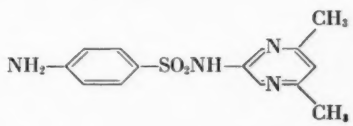
Eaton Laboratories, Inc., Norwich, N. Y.

Tablets Tripazine: 0.5 Gm. Each tablet contains 0.167 Gm. each of sulfadiazine, sulfamerazine and sulfamethazine.

Mc Neil Laboratories, Inc., Philadelphia 32, Pa.

Liquoid Metha-Merdiazine: 120-cc. and 480-cc. bottles. A homogenized dispersion containing 33 mg. each of sulfadiazine, sulfamerazine and sulfamethazine in each cc.

SULFAMETHAZINE.—(N′ - [4,6 - Dimethyl - 2-pyrimidyl]sulfanilamide).—$C_{12}H_{14}N_4O_2S$.—M. W. 278.32.—The structural formula for sulfamethazine may be represented as follows:



Actions and Uses.—Sulfamethazine resembles sulfadiazine and sulfamerazine in certain of its pharmacologic effects. When the drug is administered by the oral route, its rate of absorption from the gastrointestinal tract (as measured by the concentrations of the drug in the blood) was more rapid than that of sulfamerazine. Sulfamethazine is conjugated to the acetyl derivative relatively easily in the blood and tissues. It is bound to the blood proteins to a greater degree than is sulfadiazine, and in general the concentration of this drug in the red blood cells is less than it is in the plasma. Sulfamethazine passes into the cerebrospinal fluid in concentrations of 40 to 50% of that in the blood. In this respect, it penetrates less easily than does sulfadiazine. Its renal clearance is similar to that of sulfamerazine and about half that of sulfadiazine.

NEW AND NONOFFICIAL REMEDIES
(*Continued from Page 113*)

It is excreted readily by the kidneys, in both the free and acetylated forms. The latter constitutes about 70% of the sulfamethazine recovered in the urine. If renal function is impaired, the excretion of sulfamethazine will be reduced and the drug will accumulate in the blood and tissues. The excretion of the drug following a single dose is generally moderately rapid, with most of the drug being out of the body within 48 hours. Following single doses, the concentrations of sulfamethazine noted in the blood at 4 and 12 hours are somewhat lower than those noted with sulfamerazine but greater than those noted when sulfadiazine has been administered. Sulfamethazine is more soluble in the acid range of urinary *p*H than is either sulfadiazine or sulfamerazine. The same is true for acetyl sulfamethazine in the acid range.

The toxic manifestations of sulfamethazine are in general similar to those produced by sulfadiazine or sulfamerazine, although it is claimed that this drug is less likely to produce renal damage.

Sulfamethazine is effective in the treatment of hemolytic streptococcic, pneumococcic, meningococcic and staphylococcic infections. It also has been useful in treating certain urinary tract infections produced by *Escherichia coli*, *Aerobacter aerogenes*, *Pseudomonas aeruginosa*, and *Proteus vulgaris*.

Dosage.—When administered by the oral route to patients suffering from severe infections, the initial dose should be based on 0.10 Gm. per Kg. of body weight up to 50 Kg. of weight. Patients weighing more than 50 Kg. should not receive more than 5 Gm. of sulfamethazine as an initial dose. The maintenance dose of this drug in adults is 1.0 Gm. given at intervals of six hours. In children, one-fourth of the initial dose given at intervals of six hours constitutes an adequate maintenance dose.

Tests and Standards.—

Sulfamethazine occurs as a white to yellow-white, almost odorless powder possessing a slightly bitter taste, which may darken on exposure to light. It is freely soluble in dilute mineral acids and aqueous solutions of potassium hydroxide and sodium hydroxide, soluble in acetone, slightly soluble in alcohol and very slightly soluble in water. It melts between 197 and 200° C

[For additional tests and standards see *J. Am. Med. Assoc.*, **141**: 1234 (1949).]

V-A Prescription Volume Increases

The nation's retail pharmacists filled 641,000 prescriptions for veterans under the Veterans Administration "home town" pharmacy program during 1949, E. Burns Geiger, chief of V-A's pharmacy division, has announced.

The 641,000 prescriptions compounded represented an increase of 141,000 over the approximately half million filled in 1948.

During the last three months of 1949, privately owned pharmacies filled 175,000 prescriptions—an all-time high for any three-month period.

Under agreements between V-A and State Pharmaceutical Associations in 44 states, the District of Columbia and Hawaii, private pharmacists have been authorized to fill prescriptions, at Government expense, for veterans undergoing out-patient treatment for service-connected ailments in V-A clinics or with private physicians.

In addition to prescriptions filled by private pharmacists, a total of 3,273,000 were filled during 1949 by the 262 pharmacists in V-A hospitals and centers, and another 1,103,000 were filled by 112 pharmacists in V-A regional offices.

Also, in 1949 V-A pharmacies supplied large quantities of routine medications to wards and clinics of surgical and medical services in the hospitals.

During the past year, Mr. Geiger said, V-A reorganized the pharmacy division in the Central Office in Washington, D. C., in order to assure patients in V-A hospitals, centers and regional offices of the best possible pharmaceutical service.

Technical, training and operations sections were created. They were made necessary, Mr. Geiger explained, by the recent elimination of V-A branch offices and the assumption in Central Office of supervision of many field activities.

The technical section reviews and makes recommendations on requests for new drugs; informs V-A pharmacists throughout the country of new drug therapy and other technical developments, and maintains contact with other Government agencies and with pharmaceutical manufacturers.

The training section is charged with developing educational programs to maintain professional qualifications, skills and abilities of V-A pharmacists.

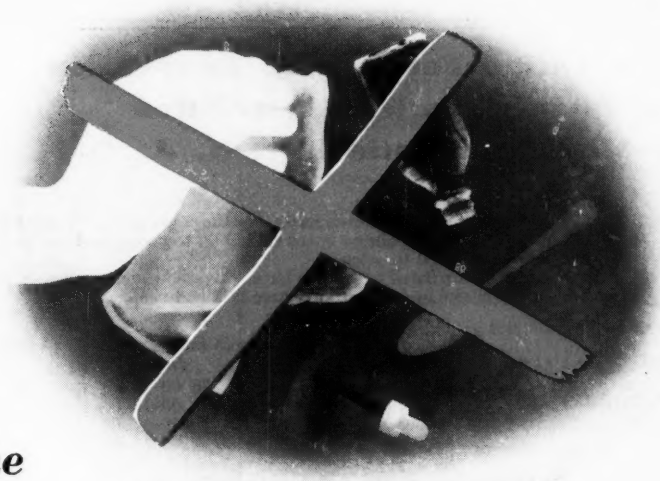
The operations section is responsible for developing procedures, techniques and standards for the purpose of insuring efficient and economical operations and management of all V-A pharmacies.

vi-syneral vitamin drops

first and **original**

aqueous solution of
fat-soluble plus
water-soluble vitamins.
(U. S. Patent No. 2,417,299.)

u. s. vitamin corporation
casimir funk laboratories, inc. (affiliate)
new york 17, n. y.



"... the common cold is aborted or cured..."[1]

"... the common cold is aborted or cured when the allergic reaction is reversed before irreparable damage has been done to the respiratory mucous membrane."[1]

CORICIDIN

(antihistaminic—antipyretic—analgesic)

The chief constituent of CORICIDIN* is Chlor-*Trimeton** Maleate, probably the most potent antihistaminic in use today. Because of its extraordinary activity, Chlor-*Trimeton* is effective in remarkably small dosage—1/10 to 1/20 the dosage of other current antihistaminics. Side reactions, including drowsiness, are correspondingly rare. In addition to Chlor-*Trimeton*, CORICIDIN contains acetylsalicylic acid and acetophenetidin with caffeine, for analgesic and antipyretic effect.

Taken early, CORICIDIN is highly successful in favorably influencing the common cold. Even after the cold is established, CORICIDIN may reduce its severity and distress and help prevent spread of the infection by reducing sneezing.

PACKAGING: CORICIDIN tablets, tubes of 12; bottles of 100 and 1000.

CORICIDIN is available on prescription only.

1. Brewster, J. M.: U. S. Nav. M. Bull. *49*:1, 1949.

*T.M.

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CORICIDIN

SCHERING

fill out this form and mail at once

Hotel Reservation Form, 1950 Convention American Pharmaceutical Association April 30–May 5, Atlantic City, N. J.

The Traymore Hotel will be headquarters for the convention. There will be sufficient room at this beautifully appointed boardwalk hotel to accommodate the great majority of those who are expected to attend.

Additional hotels are listed to provide for any overflow and members should designate second and third choice in case the Traymore is filled to capacity.

Hotels	*Rooms with Bath*		*Room and Parlor*
	Single[1]	*Double*	*Double*
TRAYMORE	$6.00–14.00	$8.00–18.00	$16.00–40.00
CHALFONTE-HADDON HALL	6.00–10.00	8.00–18.00	20.00–34.00
DENNIS	6.00– 8.00	9.00–16.00	27.00
MADISON	4.50– 6.00	7.00–10.00	

[1] Single rooms are limited in number. Please arrange to occupy twin-bed rooms if possible.

The above rates are subject to 3% municipal tax.

PLEASE MAKE HOTEL RESERVATION(S) AS INDICATED BELOW:

(1st choice)_____Hotel

(2nd choice)_____Hotel

(3rd choice)_____Hotel

____Room(s) with double bed(s)...at $____to $____per day for____person(s)

____Room(s) with twin bed(s).....at $____to $____per day for____person(s)[2]

____Single room(s)[3].....at $____to $____per day

[2] A. PH. A. Housing Committee will work with Convention Bureau in doubling up occupants of twin-bed rooms; please suggest associates or committee members who could share room with you.

[3] Very scarce; please arrange for double occupancy.

Arriving_____hour_____A.M._____P.M.

Leaving_____hour_____A.M._____P.M.

NOTE—You will receive confirmation direct from the hotel accepting the resveration when made.

Please print (or type) the Names and Addresses of All Occupants Including Person Making Reservations:

Name *Street Address* *City & State*

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Date_____Signature_____

Representing_____

MAIL REQUEST FOR ROOM RESERVATIONS TO:

A. PH. A. Housing Committee
Atlantic City Convention Bureau
16 Central Pier
Atlantic City, N. J.

S.T.37®

Antiseptic Solution

Children don't argue about gargling with S.T.37! It's fun, and it leaves a fresh, tingling after-taste. Mothers know it contains *hexylresorcinol*, potent, nontoxic antiseptic, and that it's wonderfully soothing and effective for sore throats.

S.T.37 is the ideal home antiseptic because it doesn't hurt a bit, actually relieves the pain of cuts, burns and abrasions, doesn't stain, and because it's so safe you can swallow it, full strength, without harm.

Check your stock of S.T.37 Antiseptic Solution now! Be sure you've plenty of S.T.37 for winter sore throats, and year-round antiseptic emergencies. Bottles of 5 and 12 fluidounces.
Sharp & Dohme, Philadelphia 1, Pa.

SHARP & DOHME

no argle-bargle about this gargle!

FROM THE SECRETARY'S DIARY FOR NOVEMBER

1st This day in Detroit with Dr. Elliott continuing the inspection of pharmacy colleges at the Detroit Institute of Technology and Wayne University which was begun yesterday and followed the visit to Toledo for the same purpose. At all of these institutions there are capacity classes and students seem alert and most eager to learn about opportunities when they join the ranks of the profession.

2nd Early in the morning by automobile to Ann Arbor with Dean Stocking and Dr. Elliott. Here the University of Michigan has gone far in furnishing new quarters and equipment to the College of Pharmacy, which can boast of the distinction of being the first to be affiliated with a State university. The interviews with President Ruthven, Dr. Perkins, Dean Stocking and the faculty clearly indicate an abiding interest in the development of pharmaceutical education at this university. Also a visit to the University of Michigan Hospital Pharmacy, ably presided over by Don Francke and an all too brief but most pleasant visit with Emeritus Dean Kraus whose youthful outlook on the future belies his years. Now motoring back to Detroit with Elliott, Stocking, Cataline and Francke, discussing this and that and landing at the station just a few minutes before the time to entrain for Washington.

3rd Now back at the office attacking mail messages and much second-class matter. A luncheon conference with Justin Powers brings us up to date on N. F. progress and then a meeting with Messrs. Bloom and Hecht of the American Heart Association to discuss campaign techniques. Next a conference with Dr. Dolezal who runs the "Institutes" for the American Hospital Association among which the one on Hospital Pharmacy holds top rank. Meeting Hugo Schaefer at Union Station and then to Hogates for famous sea food.

4th All the morning meeting with the Executive Committee of the National Drug Trade Conference to plan the program for the annual session of the full conference on December 2 and it promises to be a good program.

8th Off to Philadelphia by automobile for the U. S. P. open conferences and Revision Committee meeting, stopping at Baltimore en route to chat with H. A. B. Dunning whose keen interest in and active support of A. PH. A. projects is always an inspiration. Now the Kelly Memorial occupies much of his attention which means that it will soon be a reality.

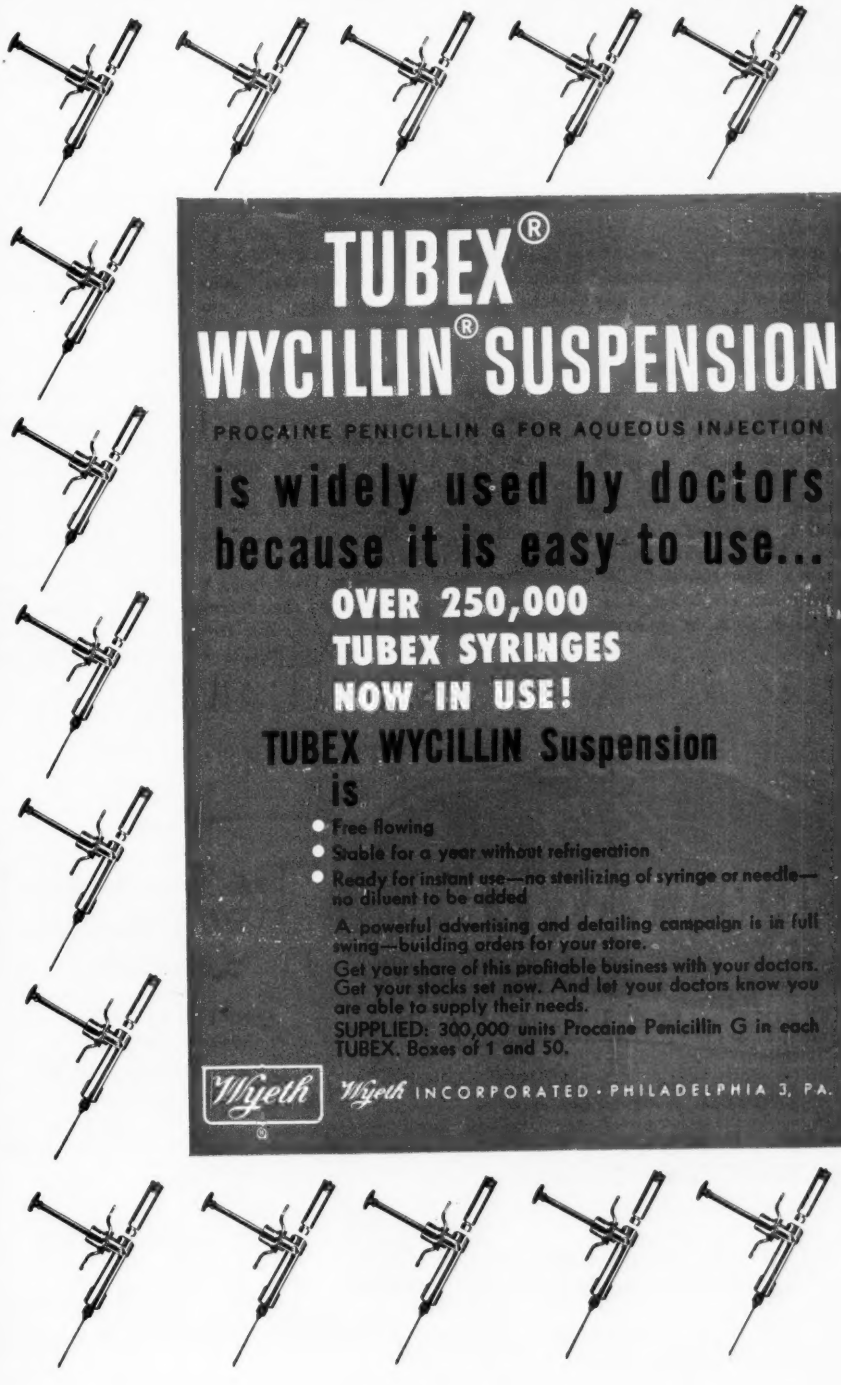
11th Today and yesterday meeting with the Committee of Six in Philadelphia where by-law revision and discussion of A. PH. A. organization and reorganization proceeded earnestly and fruitfully. Ron Robertson and Lou Longaker of the College of Apothecaries met with the Committee to discuss differences of opinion regarding terminology and the general airing of views proved mutually helpful. With the day's controversies all settled, proceeded with Christensen and Moulton to the Bellevue-Stratford Coffee Shop only to encounter a waitress who insisted that the mackerel served to B. V. C. was the blue fish he ordered; but you can't fool anybody from Columbus, Ohio, about the white meat of a blue fish.

12th Now back to Washington via Route No. 1 which winds through Belair, Md., where Lloyd Richardson practices pharmacy in an ultra-modern shop. It is always a pleasure to talk to successful pharmacists like Lloyd who is not only well versed in the problems of pharmacy but also serves on the State Board of Health.

16th This day and yesterday in attendance with Drs. Elliott and Beal at a conference on accreditation procedures sponsored by the American Council on Education. Pharmacy will never be able to thank E. C. Elliott enough for the splendid manner in which he has been representing and speaking for the profession at gatherings such as these. At lunch with A. M. A. Council on Medical Education and Hospitals' Secretary Anderson talking of pharmacal and medical cooperation.

17th A visit from U. S. P. Secretary Adley Nichols who reviewed U. S. P. by-laws before approving their publication in A. PH. A. JOURNAL. In the evening to Baltimore to address the A. PH. A. branch with Albert Mattocks and found the large attendance greatly interested in Dr. Mattocks' pictorial views and discussion of experiences in Germany as a teacher of D. P.'s.

18th At luncheon with Dr. Bachman of Brookings Institution discussing the survey now in progress on facilities for providing good medical care and better methods of its distribution. Conferring with Mr. Darnell and Miss Shenohon of the American Social Hygiene Association on plans for Social Hygiene Day.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SUPPLIED: 300,000 units Procaine Penicillin G in each TUBEX. Boxes of 1 and 50.
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TYPICAL DAYS

(Continued from Page 118)

21st Now a meeting of the Joint Conference Committee on Federal Food, Drug and Cosmetic Law Problems with Waller, Frates, Warnock and Gesoalde representing the N. A. R. D., Donaldson representing N. A. C. D. and Schaefer, Francke, Pritchard and Fischelis representing A. PH. A. and affiliates. In the afternoon to the office of the Food and Drug Administration for a conference on prescription regulations with Commissioners Crawford and Larrick and staff. Later a dinner meeting with Don Francke reviewing hospital pharmacy matters.

22nd Today presiding at the meeting of Drug Trade Conference Committee on Uniform State Legislation with Newcomb, Barta, Frailey, Jr., Waller and Frates present. As usual the only stumbling block was the regulation of proprietary drug distribution. A subcommittee of Newcomb and Barta is to attempt to break the deadlock by preparing a list of products which may be sold without professional supervision. In the afternoon another visit to Commissioner Crawford's office with Herman Waller to learn how the education of the F. D. A. on prescription practice is proceeding.

24th Holidays mean as little to E. C. Elliott as to us. A forenoon discussion on problems of pharmaceutical education and reviewing reports of colleges recently inspected before releasing them to the Council. And now for the Thanksgiving turkey and trimmings.

28th To the pentagon with N. A. B. P. Vice-President F. Royce Franzoni to discuss the problems of adequate reserves for the armed forces with a special committee of Department of National Defense. Later in the day to meet with Dr. Kiefer of the National Security Resources Board to discuss preparation of the roster of pharmacists. And now departing for conferences and meetings in New York.

30th This day and yesterday attending A. P. M. A. meetings in New York and the ceremony at the Waldorf-Astoria at which the Association of American Medical Colleges received the A. P. M. A. award for meritorious service to medical science. Yesterday a luncheon meeting at the Chemists Club with American Heart Association officials and E. L. Newcomb to prepare for distribution of plastic hearts in the campaign for funds. Reaching Washington late to wade through some of the accumulated business and send a cable of congratulation to Dr. Zayas-Bazan on the first anniversary of the Pan-American Congress of Pharmacy.

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For the Convention of
THE AMERICAN
PHARMACEUTICAL ASSN.
April 30 to May 5

Sun Decks Coffee Shop
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BACITRACIN-NASAL

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More Than Symptomatic Relief

IN ACUTE AND CHRONIC SINUSITIS

Bacitracin-Nasal-C.S.C. is a valuable means of reducing the period of disability when acute sinusitis complicates coryza. Bacitracin, through its specific antibiotic properties, destroys many of the pathogens which flourish in the nose and accessory nasal sinuses. Desoxyephedrine, through its vasoconstrictor influence, improves ventilation and sinus drainage, thus enhancing the action of bacitracin. Bacitracin-Nasal-C.S.C. may be administered by means of a nebulizing spray or by the Parkinson lateral head-low position. Available at your wholesaler in ½ ounce bottles.

1. Nonallergenic, even on repeated administration.
2. An aqueous solution which does not inhibit ciliary activity.
3. Nonirritant, isotonic.
4. May be administered to both adults and infants.

CSC

When dispensed by the pharmacist each cc. of Bacitracin-Nasal-C.S.C. provides: bacitracin 250 units, desoxyephedrine hydrochloride 2.5 mg. (0.25%), sodium benzoate 1%. The solution is stable at refrigerator temperature for 7 days.

C.S.C. Pharmaceuticals

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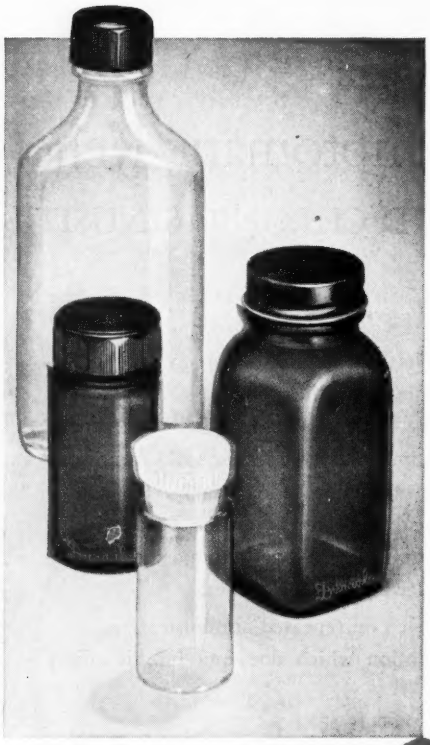

1. HAVE THEY SMART, PROFESSIONAL APPEARANCE?

Customers depend on reputation and symbols of quality in judging your prescription service. Duraglas containers reflect your professional competence. Their color, style and shape are authentic symbols of skill and care in Rx preparation. Made to stand upright, they keep your label on display—a constant reminder of you and your service.

2. ARE THEY MOISTURE-TIGHT?

The dryness, potency and quality of your prescriptions are safeguarded in Duraglas containers. Special liners in the closures combine with the depressed thread finish to give contents positive protection. They form an air-tight, moisture-tight seal and easy reseal—keep dry prescriptions *dry*, even in steamy bathrooms!

3. ARE THEY LOW IN COST?

Many druggists are surprised when we say Duraglas

Duraglas Rx

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each v
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7 VITAL TESTS Y Rx CONTAINERS

vials and squares are often cheaper than other types of containers. That's because they have overlooked an actual price comparison. Comparing *equal* quantities, each vial and square may cost less by as much as 1½¢ or more! What's more, you can have a full range of sizes with a low inventory, because you can buy as few as a gross or less of any size.

4. ARE THEY STURDY?

In pocket, purse, suitcase and desk drawer, prescription containers are squeezed, grasped and handled in a manner that demands they be rigid and very hard to crush —Duraglas containers meet these requirements.

5. ARE THEY MADE OF INACTIVE MATERIAL?

In Duraglas containers, your prescriptions are protected from the odors, tastes and other contaminations possible with other types of containers.

When you dispense in Duraglas containers you *know* your prescriptions will stay exactly as you prepare them.

6. ARE THEIR CONTENTS VISIBLE?

Unless customers can see at a glance how much of a prescription is left, they risk the inconvenience of running out of needed medicine. Your prescriptions in Duraglas containers are easily visible at all times.

7. ARE THEY AVAILABLE IN FULL SIZE RANGE?

Orderliness and precision are reflected by prescription containers which retain family identity at the same time that they "custom fit" their individual prescriptions. You'll find Duraglas containers in "just right" sizes for every prescription need. In all sizes, their quality, style and color are uniform.

Duraglas Rx containers meet every test—and in many instances cost less than other containers that cannot pass the 7 vital tests. Check the *unit* cost of all containers. You'll be amazed how often the best by test costs less than the rest.

Containers pass all 7 tests!

OWENS-ILLINOIS GLASS COMPANY • TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES

COLLEGES

By knowing and being able to recognize the early symptoms of cancer, the neighborhood pharmacist holds a very important position in the problem of cancer control, Dr. John V. Blady, director of the Tumor Clinic of Temple University Hospital, told 400 pharmacy students at an all-student convocation of the **Temple University School of Pharmacy,** recently.

David D. Stiles, associate director of sales at Abbott Laboratories, North Chicago, Ill., has been appointed a member of the Advisory Committee of the **University of Illinois College of Pharmacy.** His appointment is for a period of 5 years.

The University of Illinois Board of Trustees has approved construction of the greenhouse and service units of the Drug Plant Experiment Station just east of the Morton Arboretum. The buildings will be used jointly by the Colleges of Pharmacy and Agriculture. The College of Pharmacy also plans to develop as complete a collection as possible of living drug plants for teaching and research purposes of an additional 40 acres of land leased from the Morton Arboretum.

Gamma Zeta Chapter of Kappa Psi fraternity recently honored the women in pharmacy who are members of newly organized Alpha Gamma Chapter of Lambda Kappa Sigma at **Howard College** (Ala.). Honored guests at the installation banquet included faculty members and representatives of pharmacy from the entire State.

Charles S. Haupt has been appointed associate director of the Bureau of Professional Relations of the **College of Pharmacy, University of Florida,** to succeed L. W. Harrell, who resigned to enter the retail drug business in Palatka, Florida. Mr. Haupt is a graduate of the College of Pharmacy, Duquesne University, and has recently been chief of the Pharmacy Division of the Veterans Administration in Atlanta, Georgia.

The 25th reunion banquet of the Class of 1924, **University of Buffalo, School of Pharmacy,** was held on December 3, with approximately 50 of the 90 living members of the class in attendance. A gift of $1200 was contributed by the class, to be increased by additional donations, for the purpose of equipping a research laboratory for pharmacy graduate students.

A bulletin board, for student use, the gift of the Class of 1949, has been installed in the School of Pharmacy.

Three seniors who have received activity keys presented by the Pharmacy Student Council are Marcelyn M. Burke, William C. Burke, and George H. Smith, Jr.

Dr. Robert William Sager has been appointed an assistant professor in the **University of Pittsburgh School of Pharmacy.** Dr. Sager received his B.S., M.S. and Ph.D. degrees from the University of Washington.

Members of the Pharmacy Club of **Hardin College** have heard the following topics discussed by guest speakers at their weekly meetings during November and December: "History of the Lederle Company and Products," "The Care and Use of the Pharmaceutical Balance," "Manufacture of Glass," and "Trade Associations." The Hardin College Pharmacy Library has received several books as the gift of the University of Texas College of Pharmacy Library.

The Rho Chi chapter at the **University of Oklahoma School of Pharmacy** held its initiation banquet on December 9. Dean Henry M. Burlage of the University of Texas College of Pharmacy spoke to the members on "Trends in Pharmacy."

Dr. Ralph Bienfang, member of the Oklahoma University School of Pharmacy faculty, has been elected to honorary membership in the Associacao de Farmaceuticos do Estado do Rio de Janeiro in recognition of his "contributions to science and pharmacy."

The School of Pharmacy Dean's List for the Fall of 1949, **University of Georgia,** included 22 pharmacy students.

ASSOCIATIONS

Members of the **Wichita Falls County (Texas) Pharmaceutical Association** had as guest speaker at their December luncheon meeting, C. J. M. Roesch, the new secretary of the **Texas Pharmaceutical Association.** Dean Dan Rivkin of the Hardin College of Pharmacy was master of ceremonies for the meeting.

The **Luzerne County (Pa.) Pharmaceutical Association** has selected Richard M. Stapleton as "Druggist of the Year." The Association's gold medal was awarded Mr. Stapleton at the organization's annual dinner on January 18. Mr. Stapleton, who owns Stapleton's Drug Store in Luzerne, is a graduate of the Philadelphia College of Pharmacy

and Science. He was local chairman of the National Pharmacy Week observance in 1949 and has been active in civic and community welfare programs for many years.

HOSPITAL PHARMACY

Louis Gdalman has been appointed director of pharmacy at Michael Reese Hospital, Chicago, Ill. A graduate of the University of Illinois College of Pharmacy, Mr. Gdalman is senior chemistry instructor in the School of Nursing, St. Luke's Hospital and a lecturer in pharmacology; since 1930 he has been assistant director of pharmacy at St. Luke's Hospital. He is secretary-treasurer of the Chicago Branch of the A. PH. A. and has been president of the Illinois chapter of the American Society of Hospital Pharmacists since 1948.

MANUFACTURERS

M. William Amster, M.D., is the new head of **Schering Corporation's** Medical Service Department. Dr. Amster, who received his A.B. and M.D. degrees from George Washington University, joined Schering in 1946 as assistant to the head of the Medical Service Department.

Sharp & Dohme Interamerican Corporation, a new export company organized to transact all Sharp & Dohme export business in Puerto Rico and Argentina, began operations January 1.

Dr. Gregory Stragnell, who has been executive vice-president and general manager of **Organon Inc.,** since the company moved to its new plant at Orange, N. J. about a year ago, has been named president of the organization.

Charles E. Munson is the new hospital sales manager in the Sales Division of **Ciba Pharmaceutical Products, Inc.,** succeeding Harry A. Kenney who is retiring after 30 years with Ciba. Mr. Munson joined Ciba in 1943.

Administrative officers and their staffs have moved into the new laboratory building of the **Sterling-Winthrop Research Institute** at Rensselaer, N. Y.

Dr. William F. Wenner, assistant medical director of **The Upjohn Co.,** Kalamazoo, Mich., has been elected a fellow of the New York Academy of Science and has been invited to become an active member of The American Trudeau Society, the medical section of the National Tuberculosis Association.

Announcement has been made of the resignation of Charles Luckman as president of **Lever Brothers Co.** No arrangements have been made for filling the position, but for an interim period the executive responsibility will be placed in the hands of three directors of Unilever who are being loaned to Lever Brothers Co.

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Bentonite

. . . . . from p. 87

The results of tests with the buffered bentonite ointments indicated that only in the case of ammoniated mercury was the *p*H of the base a significant factor in the resultant effectiveness of the *in vitro* activity of the ointments. Ammoniated mercury was found to be most effective in base 10 (*p*H 4.0) and least effective in base 17 (unbuffered *p*H 7.8). See Figure 3.

Another factor of possible significance was the observation that bentonite bases and ointments, when tested against *E. coli* and *E. typhosa*, produced zones of apparent stimulation of growth of the organisms. This effect was not present when *S. aureus* was the test organism, and was most pronounced when *E. coli* was used. When a zone of inhibition of growth was produced, a secondary zone of apparent stimulation of growth was present (see Figs. 1, 2 and 3). This latter zone is referred to as a zone of "apparent" stimulation of growth because it is possible that the zone was the result of an altered appearance in the colonies of the organisms. This phenomenon was observed only when the base or ointment contained bentonite. As a consequence, further investigation is indicated.

Discussion: In concluding this report the writers would like to point out that this investigation was intended as an exploratory effort to obtain a better understanding of the manipulation of bentonite in the scientific compounding of ointment bases. Such knowledge is mandatory if the many desirable properties of bentonite are to be utilized most efficaciously in such preparations. It is generally known that bentonite, except for slight alkalinity, is practically inert chemically, is odorless, can be sterilized by heat prior to use and the consistency of bentonite ointments is not affected by temperature variations. However, probably the most desirable property of bentonite is its avid sorption for other substances, both organic and inorganic. It may be expected that the activity of many medicinals will be increased by combination with bentonite because they are carried on many microscopic particles. Thus the adherence and penetration of the medicinals will be increased when they are applied to surfaces in the form of ointments or creams.

The results of the *in vitro* tests indicate that bentonite bases are superior to fatty bases for the antiinfectives tested. Since it has been shown that the *p*H of such bases can be satisfactorily adjusted, it may be concluded that substances whose stability and activity are affected by hydrogen-ion concentration may be successfully compounded in bentonite bases. However, it is not expected that bentonite will be most satisfactory as a base for all substances. The scope of its usefulness as an ointment base must be determined empirically.

Conclusions

1. The inclusion of bentonite as a major component of the emulsion and absorption types of bases and ointments increases their elegance, versatility and efficacy.

2. Bentonite bases are prone to mold growth which is prevented by Methylparaben (0.15%) and Propylparaben (0.05%).

3. The *p*H of bentonite bases may be adjusted by means of buffer mixtures and the buffering effect is less transient in the acid range.

4. The *p*H of ointments prepared from buffered bentonite bases is affected greatly by some medicaments and the practicability of using such bases for the *p*H adjustment of an ointment must be determined empirically for each medicament.

5. The *in vitro* activity of ammoniated mercury is enhanced by incorporation in acid buffered bentonite bases.

6. The use of more than 6% of non-ionic surface-active agents does not improve the pharmaceutical elegance of bentonite bases.

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Deceased Members

Benedict, Edward N., New Haven, Conn., Mar. 31, 1949
Lambert, Albert B. (a life member), St. Louis, Mo., Nov. 12, 1946
Page, Benjamin F., Raleigh, N. C., July 22, 1949
Patterson, James A., Martinsburg, W. Va., Aug. 27, 1949
Pitts, Betty L., Great Falls, Mont., Dec. 30, 1949

Vitamin B Complex

. . . . . from p. 94

As has been pointed out before, syrup of glycyrrhiza is a good masking agent for the vitamin B complex. Here we have shown our developed product to be considerably better. It must be remembered that these tests were conducted on normal human beings and that no one taste sensation of any kind will satisfy all the persons tested.

Conclusion

By applying some of the basic concepts of taste and odor, a pleasant tasting vitamin B complex liquid preparation has been produced. Our studies indicate that syrup of glycyrrhiza is the official vehicle of choice for extemporaneously masking the taste of the vitamin B complex. The purpose of this study was to determine the taste-masking values of various vehicles when used with the vitamin B complex. Some attention, in a general way, was given to the stability of the products but no claims are made as to the effects of the vehicles on the various components of the vitamin B complex. Research on stability of the finished products and the effect of storage upon them is needed before final conclusions can be reached.

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See you in

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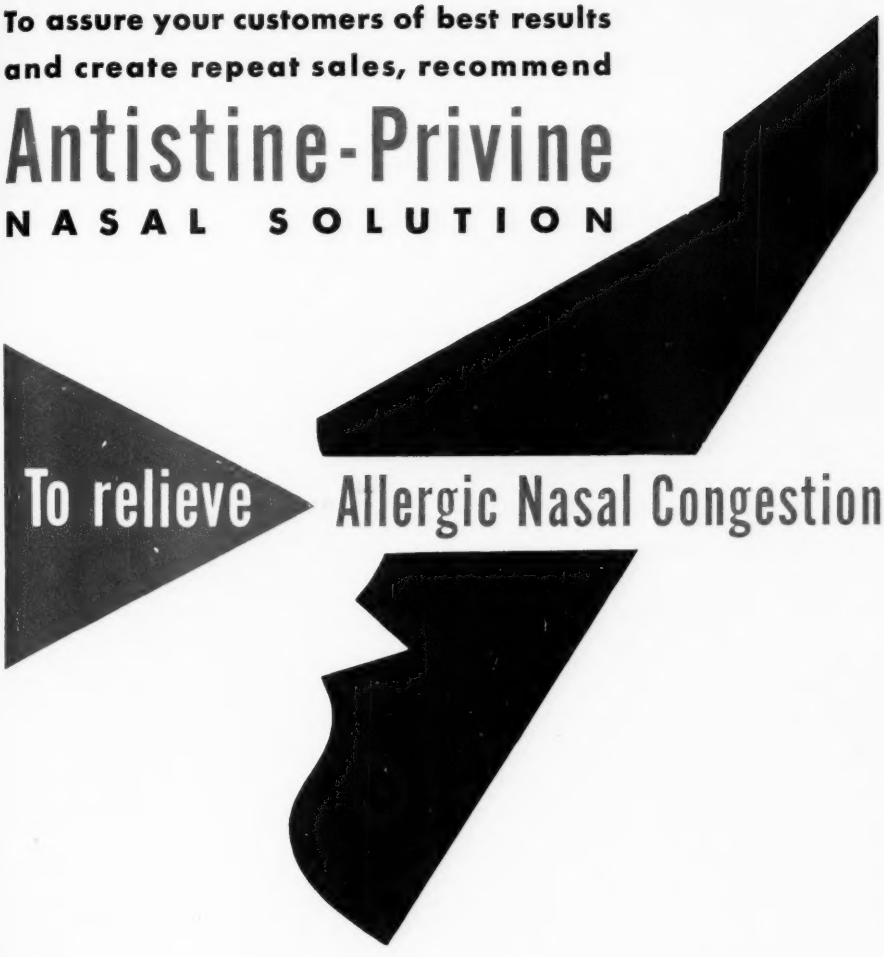

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